



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

### Usage guidelines

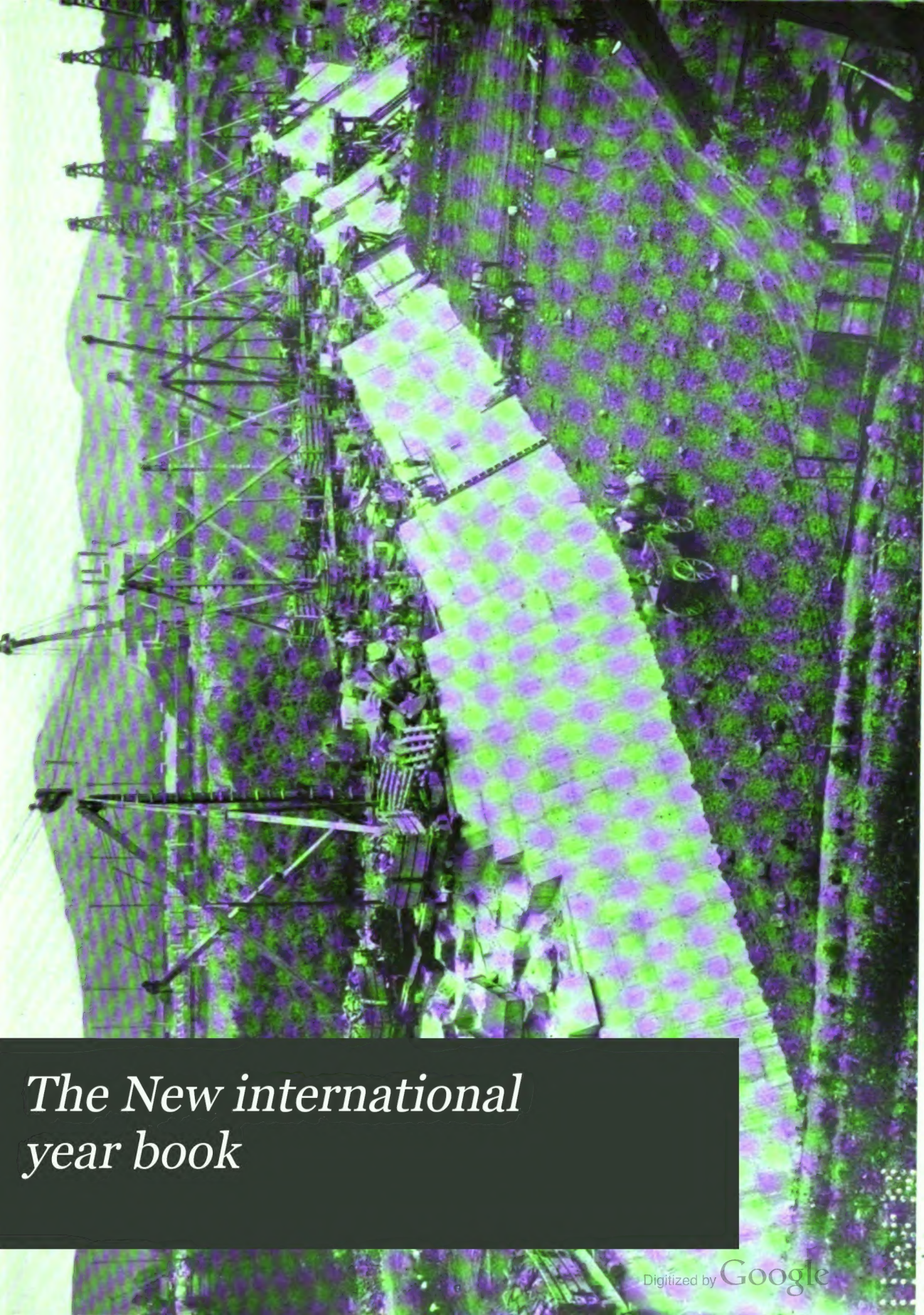
Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

### About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>



*The New international  
year book*

**THE NEW  
INTERNATIONAL  
YEAR BOOK**

---

**A COMPENDIUM OF THE WORLD'S  
PROGRESS**

**FOR THE YEAR**

**1910**

**EDITOR**

**FRANK MOORE COLBY, M.A.**

**ASSOCIATE EDITOR**

**ALLEN LEON CHURCHILL**

**NEW YORK**

**DODD, MEAD AND COMPANY**

**1911**

**COPYRIGHT, 1911, BY  
DODD, MEAD AND COMPANY**

## PREFACE

The NEW INTERNATIONAL YEAR BOOK for 1910 is the fourth volume in the new series which began with the YEAR BOOK for 1907. Its scope, as remarked in the prefaces to preceding volumes, is more extensive than that of other annual publications. It is designed as an encyclopædia of the year. It contains a minimum amount of introductory matter that space may be gained for the treatment of subjects appropriate to the year itself. It consists of new articles, not of articles revised from year to year. It is not dependent on any other work of reference. In its eight hundred and odd pages, with about 1100 words to the page, it has been possible to include a more comprehensive account of matters pertaining to the year than can be found within any other single volume. The exceptional size of the volume admits exceptionally full treatment of BIOGRAPHY and CURRENT HISTORY and POLITICS. It lessens the danger of an arbitrary and irrational selection of topics and it makes room for the presentation of both sides in the discussion of disputed questions. For convenience of reference the alphabetical arrangement has been strictly followed, and a free use of cross-references renders an index unnecessary.

Among the noteworthy features of the year's record in this country were the following: It was the year of the Thirteenth Census and before its close a portion of the returns were available. The new methods of the Census Office, a description of the work done to the close of the year and a list of towns and cities of 5000 inhabitants and over, with their populations, are given in the article UNITED STATES CENSUS. In political affairs the chief event was the great Democratic victory in the autumn elections, an account of which is given in the political paragraphs under the UNITED STATES. The electoral campaign required unusually full treatment owing to the variety and interest of the issues presented. Under NEW YORK, for example, the spirited Roosevelt campaign is given in some detail; under the title NEW NATIONALISM is presented a summary of the policies outlined in that programme; the subject of CONSERVATION receives extended treatment; the Ballinger-Pinchot affair and the questions to which it gave rise are described under PUBLIC LANDS and in the paragraphs on Administration under the UNITED STATES; the course of the insurgent movement among the Republicans is recounted under the UNITED STATES and in the historical paragraphs in the separate articles on States; and in the paragraphs on Congress in the article on the UNITED STATES will be found an outline of the important laws passed by the Sixty-first Congress, embodying practically all of President Taft's legislative programme.

Striking features of State political history in 1910 were, in addition to the Roosevelt campaign in New York already mentioned, the Lorimer episode in Illinois; the failure in Maryland to bring about virtual negro disfranchisement; the adoption of woman suffrage in Washington and the employment of the recall in Seattle—the second instance of its use in a large American city; the election of Caleb Powers, who was three times convicted of complicity in the murder of Governor Goebel, as Member of Congress from Kentucky; the vote of Maine, foreshadowing the resubmission of the Prohibition law; the graft prosecutions in Pennsylvania and in New York; and the election of a Socialist mayor of Milwaukee. The developments of the year also made it necessary to carry an exceptionally full discussion of such subjects as the REFERENDUM AND INITIATIVE; DIRECT ELECTION OF SENATORS; PRIMARY ELECTIONS; NOMINATION REFORM; MUNICIPAL GOVERNMENT, with a list of of the commission cities; and PROHIBITION, with an account of the methods of regulating the liquor traffic employed by the various States on December 31, 1910. The workings of the Tariff during the first year of its application and the questions to which it gave rise are discussed in the article TARIFF, and in commercial paragraphs under UNITED STATES. Other articles dealing with matters that attracted wide attention during the year are, FINANCIAL REVIEW, BANKS AND BANKING, POSTAL SAVINGS BANKS, TRADES UNIONS, TRUSTS, STRIKES AND LOCKOUTS, ARBITRATION (Industrial), ARBITRATION (International), and TAXATION.

In foreign politics the sharp controversy over the Budget and the Reform of Lords in Great Britain, the death of King Edward VII, the dissolution of Parliament and the general election, which left the relative strength of the political parties virtually unchanged and the political issues as acute as ever, made the British record an uncommonly full one. In France the outstanding event of the year was the great railway strike and M. Briand's summary manner of dealing with it. In Germany the chief interest centred in the failure of the Prussian franchise movement, in the new alignment of political parties and in the steady growth of the Social Democracy. In the Far East the question of neutralizing the Manchurian Railway drew public attention at the beginning of the year, and the Russo-Japanese agreement was the chief topic of discussion in the closing months. In internal affairs the main subject of interest was China's advances toward parliamentary government. In international relations important subjects requiring discussion were the CRETAN difficulty, the resumption of friendly relations between RUSSIA and AUSTRIA-HUNGARY, the question of reciprocity between CANADA and the UNITED STATES, the relations between TURKEY and BULGARIA, etc. The year was marked by two successful revolutions, one in PORTUGAL and one in NICARAGUA.

As to the articles on arts, sciences, humanities, industries and other classes of articles, the same departments and contributors as appeared in previous YEAR BOOKS have been retained, but have been supplemented this year by a discussion of COPYRIGHT by Mr. Thorvald Solberg, of LIBRARY PROGRESS by Miss M. R. Haines, of MILITARY SCIENCES, PROGRESS by Capt. O. E. Hunt, and of TERRESTRIAL MAGNETISM by Dr. L. A. Bauer. Among the subjects that required especially full treatment on account of important changes or exceptional interest in them during the year, were ARCHITECTURE, which includes a discussion of city and town planning; (also treated under MUNICIPAL GOVERNMENT); AERONAUTICS, which required extended treatment not only under its own head but in relation to MILITARY PROGRESS and NAVAL PROGRESS, and many topics in ENGINEERING, MEDICINE, SANITATION, PSYCHOLOGY, MUSIC and ARCHEOLOGY.

The material for the statistical articles is derived from official sources, and in the preparation of these articles as well as of those which deal with public affairs, especially in the United States and Canada, invaluable aid has been given by government officials. Among those to whom special recognition is due for such services may be mentioned the following: Major Frank McIntyre, Acting Chief of the Bureau of Insular Affairs, for information in regard to the Philippines; Mr. O. P. Austin, Chief of the Bureau of Statistics, Department of Commerce and Labor; Mr. E. Dana Durand, Director of the Census; various officials in the Departments of War, Navy and the Interior; the Superintendents of Education, Commissioners of Charities and Corrections, Treasurers, the officers of colleges, societies and religious bodies; and the editors of leading newspapers in the States, who have coöperated in the preparation of the paragraphs on State politics and history.

Dodd, Mead and Company desire to express their indebtedness for the use of illustrations as follows: To *Current Literature*, for portraits of William James, Julia Ward Howe, A. J. Balfour, Leo Tolstoy, J. Q. A. Ward, Robert Koch, Mme. Curie, Edward VII., José Canalejas, A. A. Michelson and Sir J. J. Thomson, and for the illustration of George Grey Barnard's sculptures for the Pennsylvania Capitol; to the *Review of Reviews* for the portrait of H. H. Asquith; to Harper and Brothers, for the portrait of William J. Rolfe; to the *National Geographic Magazine*, for illustrations of the Eagle Dam Project and Shoshone Dam; to the *Century Magazine*, for the illustration "A German Tragedian"; to the *American Journal of Archaeology*, for illustrations of excavations at Sardis; to the Bureau of Insular Affairs for the illustration of "A Philippine Conference"; to Captain O. E. Hunt, U. S. A., for illustrations of New Fighting Equipment, United States Army; to the Isthmian Canal Commission for illustrations of the Panama Canal; and to Knoedler and Company for the portrait of Winslow Homer.

FRANK MOORE COLBY.

## EDITOR

FRANK MOORE COLBY, M. A.

## ASSOCIATE EDITOR

ALLEN LEON CHURCHILL

## LIST OF CONTRIBUTORS

### AGRICULTURE, HORTICULTURE, DRAMA, PAINTING AND SCULPTURE FOODS, IRRIGATION, BOTANY, FORESTRY, ETC.

ALFRED CHARLES TRUE, PH. D.,  
UNITED STATES DEPARTMENT OF AGRICULTURE,  
AND  
EDWIN WEST ALLEN, PH. D.,  
UNITED STATES DEPARTMENT OF AGRICULTURE;  
ASSISTED BY EXPERTS IN THE DEPARTMENT OF  
AGRICULTURE AT WASHINGTON.

PHILIP G. HUBERT, JR.,  
FORMERLY ART WRITER FOR THE NEW YORK  
"EVENING POST"; NOW OF THE DRAMATIC AND  
MUSICAL DEPARTMENT OF THE NEW YORK  
"HERALD."

### EDUCATION

CLYDE FURST, M. A.,  
SECRETARY TEACHERS' COLLEGE, COLUMBIA UNIVERSITY.

### ANTHROPOLOGY AND ETHNOLOGY

CLARK WISSLER, PH. D.,  
AMERICAN MUSEUM OF NATURAL HISTORY, AND  
ROBERT H. LOWIE, PH. D.,  
AMERICAN MUSEUM OF NATURAL HISTORY.

### ECONOMICS AND POLITICAL SCIENCE

FRANK HAMILTON HANKINS, PH. D.,  
ASSISTANT PROFESSOR OF ECONOMICS, CLARK  
UNIVERSITY.

### ARCHITECTURE

A. D. F. HAMLIN, M. A.,  
PROFESSOR OF THE HISTORY OF ARCHITECTURE,  
AND EXECUTIVE HEAD, SCHOOL OF ARCHITECTURE,  
COLUMBIA UNIVERSITY.

### ELECTORAL REFORM, INTERNATIONAL ARBITRATION, AND SOCIAL WORK OF THE CHURCHES

CLINTON ROGERS WOODRUFF, LL. B.,  
SECRETARY OF THE NATIONAL MUNICIPAL  
LEAGUE AND OF THE MOHONK CONFERENCE,  
AND PRESIDENT OF THE BOARD OF PERSONAL  
REGISTRATION, PHILADELPHIA.

### ARCHAEOLOGY

OLIVER SAMUEL TONKS, PH. D.,  
PRECEPTOR IN ART AND ARCHAEOLOGY, PRINCETON  
UNIVERSITY.

### ELECTRICAL ENGINEERING

WILLIAM E. WICKENDEN, B. S.,  
ASSISTANT PROFESSOR OF ELECTRICAL ENGINEERING,  
MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

### ASTRONOMY AND METEOROLOGY

T. W. EDMONDSON, PH. D.,  
PROFESSOR OF MATHEMATICS, NEW YORK UNIVERSITY.

### EXPLORATION AND POLAR RESEARCH

CYRUS C. ADAMS,  
MEMBER OF THE STAFF OF THE AMERICAN GEOGRAPHICAL  
SOCIETY. GEOGRAPHICAL WRITER  
FOR THE NEW YORK "SUN."

### CHEMISTRY

M. A. ROSANOFF, SC. D.,  
HEAD OF THE UNIVERSITY CHEMICAL DEPARTMENT  
AND DIRECTOR OF LABORATORIES, CLARK  
UNIVERSITY, WORCESTER, MASS.

### FOREIGN GAZETTEER

EDWARD LATHROP ENGLE AND  
ALLAN EVA ENGLE.

### CHEMISTRY, INDUSTRIAL AND EXPOSITIONS

MARCUS BENJAMIN, PH. D.,  
EDITOR FOR THE UNITED STATES NATIONAL  
MUSEUM.

### GEOLOGY

DAVID HALE NEWLAND,  
ASSISTANT STATE GEOLOGIST, NEW YORK.

### CIVIL ENGINEERING

REGINALD GORDON.

### LIBRARY PROGRESS

M. R. HAINES,  
MANAGING EDITOR OF "THE LIBRARY JOURNAL."

### COPYRIGHT

THORVALD SOLBERG,  
REGISTER OF COPYRIGHTS, LIBRARY OF CONGRESS,  
WASHINGTON, D. C.

### LITERATURE, AMERICAN AND ENGLISH

EDWIN E. SLOSSON, PH. D.,  
LITERARY EDITOR "THE INDEPENDENT."

## **LITERATURE, FRENCH**

ALBERT SCHINZ, PH. D.,  
PROFESSOR OF FRENCH LITERATURE, BRYN MAWR  
COLLEGE.

## **LITERATURE, GERMAN**

AMELIA VON ENDE  
AMERICAN CORRESPONDENT FOR THE "LITER-  
ARISCHES ECHO."

## **MANUFACTURES, TECHNOLOGY, AERO- NAUTICS AND FIRE PROTECTION**

HERBERT TREADWELL WADE,  
EDITOR OF THE "ENGINEERING INDEX ANNUAL,"  
1909.

## **MEDICINE**

ALBERT WARREN FERRIS, A. M., M. D.,  
PRESIDENT NEW YORK STATE COMMISSION IN  
LUNACY; FORMER ASSISTANT IN NEUROLOGY,  
COLUMBIA UNIVERSITY; ASSISTANT IN MEDI-  
CINE, NEW YORK UNIVERSITY AND BELLEVUE  
MEDICAL COLLEGE.

## **MILITARY PROGRESS**

O. E. HUNT, CAPTAIN U. S. A.,  
INSTRUCTOR IN MODERN LANGUAGES, UNITED  
STATES MILITARY ACADEMY.

## **MUSIC**

ALFRED REMY, M. A.,  
PROFESSOR OF HARMONY AND COUNTERPOINT,  
INTERNATIONAL CONSERVATORY OF MUSIC, NEW  
YORK.

## **NAVAL PROGRESS AND BATTLESHIPS**

H. F. BRYAN, COMMANDER U. S. N.

## **PHILOLOGY**

CHARLES KNAPP, PH. D.,  
PROFESSOR OF CLASSICAL PHILOLOGY, BARNARD  
COLLEGE, COLUMBIA UNIVERSITY.

JOHN L. GERIG, PH. D.,  
ASSISTANT PROFESSOR OF ROMANCE LANGUAGES,  
COLUMBIA UNIVERSITY.

## **PHILOSOPHY**

FRANK THILLY, A. M., PH. D., LL. D.,  
PROFESSOR OF PHILOSOPHY, SAGE SCHOOL OF  
PHILOSOPHY, CORNELL UNIVERSITY.

## **PHYSICS**

GEORGE B. PEGRAM, PH. D.,  
ADJUNCT PROFESSOR OF PHYSICS, COLUMBIA  
UNIVERSITY.

## **PSYCHOLOGY, PSYCHICAL RESEARCH AND PSYCHOTHERAPY**

MADISON BENTLEY, B. S., PH. D.,  
ASSISTANT PROFESSOR OF PSYCHOLOGY IN COR-  
NELL UNIVERSITY.

## **RAILWAYS**

RODNEY HITT, B. S., M. E.,  
ASSOCIATE EDITOR "STREET RAILWAY JOURNAL."  
ASSOCIATE MEMBER MASTER CAR BUILDERS' AS-  
SOCIATION.

## **SANITARY ENGINEERING AND MUNICIPAL ACTIVITIES**

MOSES NELSON BAKER, C. E.,  
ASSOCIATE EDITOR OF THE "ENGINEERING  
NEWS"

## **SPORTS**

CHARLES A. TAYLOR,  
MEMBER OF THE STAFF OF THE NEW YORK  
"TRIBUNE."

## **TERRESTRIAL MAGNETISM**

L. A. BAUER, PH. D.,  
DIRECTOR OF THE DEPARTMENT OF TERRESTRIAL  
MAGNETISM, CARNEGIE INSTITUTION OF WASH-  
INGTON.

## **ZOOLOGY**

AARON L. TREADWELL, PH. D.,  
PROFESSOR OF BIOLOGY, VASSAR COLLEGE.

# ILLUSTRATIONS

	FACING PAGE
ALBERT ABRAHAM MICHELSON	2
AERONAUTICS: BELMONT PARK, GENERAL VIEW WITH LATHAM, DBEXEL AND JOHNSTONE	2
IN FLIGHT; "BABY WRIGHT," ORVILLE WRIGHT IN SEAT	8
AERONAUTICS: PARIS TO LONDON—CLEMENT-BAYARD AT WORMWOOD SCRUBBS; THE "AMERICA"	12
NEW YORK CITY WATER SUPPLY: MASONRY PORTION OF OLIVE BRIDGE DAM, ASHOKAN RESERVOIR, CATSKILLS	40
EXCAVATIONS AT SARDIS: STEPS IN INNER ROW OF COLUMN BASES FROM THE WEST; PART OF WALL OF ACROPOLIS	50
HALLEY'S COMET	66
BJÖRNSTJERNE BJÖRNSEN	100
THEOPHILO BRAGA	110
SAMUEL LANGHORNE CLEMENS	168
MME. CURIE	198
FOUR PLAYWRIGHTS PROMINENT IN 1910: KATE DOUGLAS WIGGIN, JOSEPHINE PRESTON PEABODY, EDMOND ROSTAND, MAURICE MAETERLINCK	212
FOUR PLAYERS PROMINENT IN 1910: EDITH WYNNE MATTHISON, ERNST RITTER VON POSSART, HENRY MILLER, WILLIAM GILLETTE	214
MARY BAKER G. EDDY	220
EDWARD VII	226
ASSOCIATE JUSTICE DAVID J. BREWER; CHIEF JUSTICE MELVILLE W. FULLER	278
GEORGE V. OF ENGLAND; QUEEN MARY OF ENGLAND	284
HERBERT HENRY ASQUITH, BRITISH PRIME MINISTER	324
ARTHUR JAMES BALFOUR, LEADER OF THE BRITISH OPPOSITION	326
HOUSE OF GOVERNORS	352
JULIA WARD HOWE	354
WILLIAM HOLMAN HUNT	356
WILLIAM JAMES	390
ROBERT KOCH	404
NEW YORK PUBLIC LIBRARY, NEW YORK CITY; MAIN READING ROOM	420
FOUR FAMOUS WRITERS WHO DIED IN 1910: GOLDWIN SMITH, WILLIAM J. ROLFE, SYDNEY W. PORTER, WILLIAM VAUGHN MOODY	424
NEW INFANTRY FIGHTING EQUIPMENT, UNITED STATES ARMY	460
FOUR COMPOSERS PROMINENT IN 1910: ENGELBERT HUMPERDINCK, GIACOMO PUCCINI, VICTOR HERBERT, ARTHUR NEVIN	484
FOUR OPERA SINGERS PROMINENT IN 1910: RICCARDO MARTIN, GERALDINE FARRAR, MARY GARDEN, OLIVE FREMSTAD	488
GRAND CENTRAL TERMINAL, NEW YORK CITY: SECTIONAL VIEW; GENERAL VIEW	522
TWO FAMOUS AMERICAN ARTISTS WHO DIED IN 1910: WINSLOW HOMER, JOHN LA FARGE	550
"PORTRAIT OF A GERMAN TRAGEDIAN" BY ERNEST L. BLUMENSCHNEIN	552
PANAMA CANAL: GENERAL VIEW OF UPPER LOCKS AND FOREBAY AT GATUN, LOOKING NORTH, JULY, 1910	554
PANAMA CANAL: GATUN LOCKS LOOKING SOUTH; END OF MIDDLE LOCK IN FOREGROUND; GATUN SPILLWAY LOOKING NORTH	556
SCULPTURES OF GEORGE GREY BARNARD FOR THE PENNSYLVANIA CAPITOL, HARRISBURG: THE BROKEN LAW; THE NEW ADAM AND EVE; WORK AND FRATERNITY	564
A PHILIPPINE CONFERENCE	576
SIR J. J. THOMSON	586
PENNSYLVANIA STATION, NEW YORK CITY; MAIN WAITING ROOM; CONCOURSE SHOWING TRAIN GATES AND INDICATORS	620
SITE OF EAGLE DAM RECLAMATION PROJECT, NEW MEXICO	624
SHOSHONE DAM	626
FOREST HILLS GARDENS	646
MEMORIAL TO ALICE FREEMAN PALMER AT WELLESLEY COLLEGE	654

## ILLUSTRATIONS

SEÑOR JOSÉ CANALEJAS . . . . .	682
NON-MAGNETIC SHIP "CARNEGIE" . . . . .	710
LEO TOLSTOY . . . . .	716
UNITED STATES SUPREME COURT . . . . .	752
FOUR DEMOCRATIC GOVERNORS ELECTED IN 1910: WOODBROW WILSON, JOHN A. DIX, SIMEON E. BALDWIN, EUGENE N. FOSS . . . . .	766
JOHN QUINCY ADAMS WARD . . . . .	800
ROBERT FULTON MEMORIAL GATE, NEW YORK CITY . . . . .	802

## MAPS

	FACING PAGE
ALASKA . . . . .	28
ARIZONA . . . . .	60
CENTRAL AMERICA . . . . .	140
CUBA . . . . .	196
MANCHURIA . . . . .	442
NEW MEXICO . . . . .	514
PANAMA CANAL . . . . .	558
PORTUGAL . . . . .	600

NOTE: Cross references in SMALL CAPITALS indicate that the allusion is to a separate article; cross references in *italics* denote that the reference is to a subdivision of a main article. A cross reference in *italics*, standing alone in an article, carries the reference to another subdivision of the same article. The letters q. v. (*quod vide*=Latin "which see") in parenthesis following a word, indicate that the subject is treated under its own name elsewhere in the volume.

NOTE: In certain tables in this work it will be found, by addition, that the totals do not correspond to the sum of the items. This is the result of the omission or inclusion of certain small items which are not mentioned in the table, but are included in the totals. This is a usage frequently employed in the compilation of government statistics, from which sources the greater number of the tables in the YEAR BOOK are taken.

# THE NEW INTERNATIONAL YEAR BOOK

**A**BBOTT, EDITH. See LITERATURE, ENGLISH AND AMERICAN, section *Political and Social Science*.

ABYDOS. EXCAVATIONS IN. See ARCHAEOLOGY.

**ABYSSINIA.** An independent empire of eastern Africa, composed of the kingdoms of Tigré (with Lasta), Amhara (with Gojam), and Shoa, together with territories and dependencies in the south and southeast and large portions of the Galla and Somali lands. The estimated area is 308,000 square miles; the population, between nine and eleven millions. Addis Abba, the capital, has an estimated population of between 30,000 and 35,000; Harrar, 50,000; Gondar, 5000; Aksum, 5000; Mahdera-Mariam, 4000; Adua, 3000. The population is made up of Semitic Abyssinians, Hamitic Gallas and Somalis, Negroes, Falashas, and non-natives. The Abyssinians are members of the Alexandrian Church; their head bishop is a Copt, controlled by a native *echegheh*. Education, compulsory since 1907 for male children, is provided by the state, which supplies Coptic teachers.

Stock raising and agriculture are the principal occupations of the people. In the low, hot regions sugar-cane, cotton, coffee (average annual yield, 10,000,000 lbs.), indigo, bananas, etc., are grown, and rubber is indigenous; fruits, cereals, tobacco, and potatoes thrive on the plateaux; while the heights furnish excellent pasture. There are few minerals; iron, coal, gold, etc., have been found in varying quantities. Imports and exports in 1905, 14,091,000 and 16,903,000 francs respectively (exports of coffee, 2,726,000 francs; skins, 2,182,000; ivory, 1,596,000; wax, 917,000.) Later statistics are incomplete; an English source gives an estimate for 1908 of about £365,000 imports and £375,000 exports. A railway (French) from Jibuti to the capital is under construction; the first stage is completed to Diré Dawa (193 miles.) Posts and telegraphs (over 1000 miles) are under French management. The Menelek dollar (the talari, worth about 50 cents) is the official standard.

A *ras* (prince, or feudal chief) governs each kingdom, under the emperor who, as king of Shoa, became ruler of all Abyssinia in 1889 under the name Menelek II (born 1843). The heir-apparent, Prince Lidj Jeassu (or Eyassu), son of Menelek's daughter, took over, March 23, 1910, the administration of affairs, under the guardianship of Ras Tassama. This step was advocated by the principal chiefs on account of Menelek's failing strength. Lidj Jeassu was born in 1896; was proclaimed heir-apparent in 1908; and married, May 16, 1909, Princess

Romanie (born 1902), granddaughter of the late emperor, John.

**ARMY.** The king of Abyssinia maintains a permanent or active army of *wottader* or mercenaries which consists of imperial troops and troops from the tributary provinces. The former, which are in large part mounted and supplied with artillery, comprise in the aggregate about 60,000 men. The tribal troops, estimated to number about 80,000 in all, have an organization similar to that of the imperial army. The Abyssinian army in time of war could be increased to about 200,000 men, but only a part of these would be armed with modern rifles and these would be of different patterns.

In 1910, as in the previous year, there were frequent rumors of the Emperor Menelek's approaching death. In the autumn of 1910 there was a threatened rebellion in Northern Abyssinia, where the brother of Queen Taito raised his standard, but early in November it was announced that the regency was completely successful, the insurgent leader having rendered his submission, and that peace was restored in the disturbed provinces.

**ACADEMIES, INTERNATIONAL ASSOCIATION OF.** A body established in 1899 on the initiative of the British Royal Society. It represents twenty academies of learned societies in Europe and America. Delegates of the constituent bodies meet once in every three years. Meetings were held in Paris, 1901, London, 1904, and Vienna, 1907. The Association is preparing an international catalogue of scientific literature. It is also undertaking a complete edition of the works of Leibnitz and an Encyclopædia of Islam and considering plans for the interchange of manuscripts and books between different countries. In England the Royal Society represents the science section, and the British Academy the letters section of the Association.

**ACADEMY.** With the exception of the British and French Academies given below, Academies are treated under the title which indicates their purpose or nature: for example, American Academy of Arts and Letters under ARTS AND LETTERS, AMERICAN ACADEMY OF; American Academy of Political and Social Science, under POLITICAL AND SOCIAL SCIENCE, AMERICAN, etc.

**ACADEMY, BRITISH FOR THE PROMOTION OF HISTORICAL, PHILOSOPHICAL AND PHILOLOGICAL STUDIES.** A learned society incorporated in 1902. Its object is the promotion of studies of the moral and political sciences, including history, philosophy, law, politics, archæology and philology. The maximum number of fellows of

the Academy is 100. In 1910 there were 99 distributed under four main sectional committees, which with their chairmen are as follows: History and Archæology, Lord Reay; Philology, Dr. F. G. Kenyon; Philosophy, Professor Bosanquet; Jurisprudence and Economics, Sir W. R. Anson. The President of the Academy, Professor S. H. Butcher (q. v.), died during the year. The secretary is Professor I. Gollancz.

**ACADEMY, FRENCH (ACADÉMIE FRANÇAISE).** An institution founded in 1635 by Cardinal Richelieu, and reorganized in 1810. It is the first of the five academies constituting the Institute of France, the other four being: the Academy of Inscriptions and Belles-lettres, Academy of Sciences, Academy of Fine Arts, and Academy of Moral and Political Science. The Academy consists of forty members. It is the chief tribunal of questions relating to the niceties of the French language and of grammar, rhetoric, poetry and the classification of French classics. The members receive an annual stipend of 1500 francs, and in addition the six members of the Dictionary Committee receive each 1000 francs annually. The Academy annually distributes 12,000 francs in prizes alternately for poetry and eloquence, besides a number of smaller prizes. One new member, Monseigneur Duchesne, was chosen in 1910 to fill the vacancy caused by the death of Mathieu. There were four vacancies at the end of 1910, caused by the deaths of Marquis Costa de Beauregard (1910), Eugène Marie Melchior (1910), Comte Vandal (1910), and Henri Barboux (1910). The present academicians and the dates of their election are:

Emile Ollivier, 1870; Alfred Jean François Mézières, 1874; Othénin P. de Cléron, Comte d'Haussonville, 1886; Jules Arnaud Arsène Claretie, 1888; Charles Louis de Saulles de Freycinet, 1890; Louis Marie Julien Viaud (Pierre Loti), 1891; Ernest Lavisse, 1892; Paul Louis Thureau-Dangin, 1893; Paul Bourget, 1894; Henri Houssaye, 1894; Jules Lemaitre, 1895; Jacques Anatole Thibault (Anatole France), 1896; Albert, Comte de Mun, 1897; Gabriel Hanotaux, 1897; Henri Léon Emile Lavedan, 1899; Paul Deschanel, 1899; Paul Hervieu, 1900; Auguste Emile Faguet, 1900; Charles Jean Melchior, Marquis de Vogüé, 1901; Edmond Rostand, 1901; Frédéric Masson, 1903; René Bazin, 1903; Etienne Lamy, 1905; Alexandre Félix Joseph Ribot, 1906; Maurice Barrès, 1906; Marquis de Ségur, 1907; Maurice Donnay, 1907; Jules Henri Poincaré, 1908; Jean Richepin, 1908; Francis Charmes, 1908; René Doumic; Marcel Prévost; Jean Aicard; Eugène Brieux; Raymond Poincaré, 1909; Monseigneur Duchesne (1910).

**ACCIDENTS IN COAL MINES.** See COAL.

**ACCIDENTS, RAILWAY.** See RAILWAYS.

**ACETYLENE MINE LAMPS.** See COAL.

**ACHENBACH, ANDREAS.** A German landscape painter, died April, 1910. He was born at Cassel in 1815. While still a boy he became a pupil of Schadow at Düsseldorf, where he became associated with his brother, Oswald. He was the first great realist in landscape, modeling his art on the Dutch painters of the 17th century. Many of his works are in private galleries in the United States. He is represented in the Metropolitan Museum, New York, and in the Pennsylvania Academy, Philadelphia.

Among his principal works are "Hardanger Fjord" (1843); "The Pontine Marshes" (1846), and "The Fish Market at Ostend" (1866).

**ACTON, JOHN ADAMS.** An English sculptor, died Oct. 31, 1910. He was born at Acton, Middlesex, in 1831, and was educated at Lady Byron's School, Ealing. He received his training as a sculptor at the Royal Academy Schools, where he took several first-class and gold medals and gained a traveling studentship. He was sent to Rome under the presidency of Sir Charles Eastlake and remained in that city ten years. During a portion of this time he was a pupil of Gibson. His best known works in sculpture are portrait busts of Queen Victoria, King Edward VII. and Queen Alexandra. The Wesley Memorial at Westminster Abbey was his work. He also produced the George Cruikshank monument at St. Paul's Cathedral, and notable statues of Gladstone and Beaconsfield.

**ACTON, LORD.** See LITERATURE, ENGLISH AND AMERICAN.

**ADAM, PAUL.** See FRENCH LITERATURE.

**ADAMS FUND.** See AGRICULTURE EXPERIMENT STATIONS.

**ADDAMS, JANE.** See LITERATURE, ENGLISH AND AMERICAN, section, *Biography*.

**ADEN.** A British dependency on the Arabian coast; a part of the Bombay Presidency. Area, 75 square miles; population (1901), 41,222, against 44,079 in 1891. The island of Perim (area, 5 square miles; population, 2752), the Kuria Muria Islands (5 in number), and the Aden Protectorate (area, 9000 sq. miles; pop. about 100,000) are attached to Aden. The peninsula is of volcanic origin and non-productive, the trade being almost entirely one of transshipment. It is an important coaling station, and by reason of its strategic position is strongly fortified. Imports (1908-9) by sea, £2,805,260; by land, £157,960; treasure, £415,568. Exports by sea, £2,580,770; by land, £95,260; treasure, £1,575,780. These figures are exclusive of government stores and treasure. The chief articles of trade are coffee, gums, grain, piece goods, hides and skins and tobacco. In 1908-9, 1306 vessels (merchant) of 2,958,965 tons net entered the port of Aden. Under the Bombay government, the settlement is administered by a political resident (1910, Major-General E. de Brath), who is also in command of the troop.

**ADLER, FELIX.** See CHILD LABOR.

**ADMINISTRATION.** See UNITED STATES.

**ADULTERATION.** See FOOD AND NUTRITION.

**ADVANCEMENT OF SCIENCE, AMERICAN ASSOCIATION FOR THE.** A learned society which exists as a continuation of the American Association of Geologists and Naturalists, organized in 1840. In its present form it was chartered in 1874. The association is made up of eleven sections: mathematics and astronomy, physics, chemistry, mechanical science and engineering, geology and geography, zoölogy, botany, anthropology and psychology, social and economic science, physiology and experimental medicine, and education. Annual meetings of the association are held in different cities of the United States. The meeting of 1910 was held at the University of Minnesota, Minneapolis, December 27-31. This was the 62nd annual meeting of the association. The registered number of members in attendance



**ALBERT ABRAHAM MICHELSON**  
**PRESIDENT OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, 1910-11**

1870

was approximately 500, but the actual attendance was not far from 1200. It was one of the most successful meetings in point of numbers ever held. This fact was of especial interest as it had been questioned whether a successful and well attended meeting of the association could be held in the Middle West.

There were three public addresses during the meeting. The retiring president, Dr. David Starr Jordan, delivered an address on "The Making of a Darwin." Mr. W. A. Bryan gave an illustrated public lecture on the Hawaiian volcano of Kilauea, and Mr. A. B. Stickney delivered a public lecture on the subject Should Agriculture and the Physical Development of Childhood be added to the Curriculum of the Public Schools? A symposium on aviation under the auspices of the section on mechanical science and engineering was also of popular interest. The section on mathematics and astronomy held a joint session with the American Mathematical Society. The section on chemistry held no session apart from the session for the delivery of the vice-presidential address. All sessions of the general programme in this section were essentially joint sessions, though under the auspices of the American Chemical Society. Sixteen papers were read before the Division of Agriculture and Food Chemistry, 12 before the Division of Fertilizer Chemistry, four before the Division of Pharmaceutical Chemistry, and eight before the Chemical Educational Section. In the Division of Inorganic Chemistry 47 papers were given and many papers were read before the Biological Section, before the Industrial Chemists and Chemical Engineers and before the Division of Organic Chemistry. In the symposium on aeronautics referred to above, 12 papers were presented. Before the Section on Geology and Geography papers were presented on economic geology, on structural geology, glacial geology and geography. The Section on Zoölogy met in joint session with the central branch of the American Society of Zoölogists, and 43 papers were read at these sessions. The Section on Botany met jointly with the Botanical Society of America and the American Phytopathological Society, Seventy-one papers were presented at the Botanical sessions. The Section on Anthropology and Psychology held no meeting, but the American Psychological Association and the Western Philosophical Association met in joint session and in session with the Section on Education. Thirty-four papers were presented. In the Section on Social and Economic Science 12 papers were read. In the Section on Physiology and Experimental Medicine, there was a symposium devoted to the subject, "Diseases due to Filtering Organisms." The Section on Education met in joint session with the American Psychological Association for the discussion of the topic, "Educational Psychology" and in joint session with the American Federation of Teachers of Mathematical and Natural Science to discuss the topic, "Methods of Testing the Results of Science Teaching."

Among the important actions taken by the Council was the preparation of a resolution requesting the Postmaster-General to give careful attention to the effects of any ruling of the Post Office Department that might limit the advancement and diffusion of science throughout the country. This was in view of the proposed change of rates in second-class matter. The

election of the Fellows of the Association was placed on the basis of professional work in science in the hope that greater uniformity would then be secured in the action of sectional committees. The next meeting of the Association will be held in Washington, from December 27 to 30, 1911. The following officers were elected: President, C. E. Bessey; Vice-Presidents; Section A, Mathematics and Astronomy, E. B. Frost, Yerkes Observatory; Section B, Physics, R. A. Milliken, Chicago University; Section C, Chemistry, F. K. Cameron, Department of Agriculture, Washington; Section D, Mechanical Science and Engineering, C. S. Howe, Case School of Applied Science; Section E, Geology and Geography, Bohumil Shimek, University of Iowa; Section F, Zoölogy, H. F. Nachtrieb, University of Minnesota; Section G, Botany, F. C. Newcombe, University of Michigan; Section H, Anthropology and Psychology, G. T. Ladd, Yale University; Section I, Social and Economic Science, no election; Section K, Physiology and Experimental Medicine, Dr. W. T. Porter, Harvard University; Section L, E. L. Thorndike, Columbia University; General Secretary, John Zeleny, University of Minnesota; Secretary of the Council, T. S. Palmer, Washington, D. C.

**ADVANCEMENT OF SCIENCE, BRITISH ASSOCIATION FOR THE.** A learned society, founded at York, England, in 1831 for the purpose of stimulating scientific inquiry, for promoting the intercourse of scientific men and for evoking public interest in the progress of science. The Association holds its meeting annually in important cities of the United Kingdom and of the colonies. It does not hold meetings in London. The meeting of the Association in 1910 was held in Sheffield. The inaugural address was delivered by Rev. T. J. Bonney, the President-elect. This address dealt with problems of the Ice Age. In the mathematical and physical section Professor E. W. Hobson delivered an address on the scope and tendencies of modern mathematics. In the same section, Sir J. J. Thomson read a paper on the cathode rays. Sir William Ramsay and Sir W. Gray announced the result of the emanation of radium and declared it to be a gas of the argon type. See **CHEMISTRY**. Important addresses were made also in the other sections, which include the agricultural section, geological section, zoölogical section, geographical section, engineering section, physiological section, botanical section, educational science section, anthropological section and the economic science and statistics section. In the last named section a valuable report was presented by Professor Cannan on the number and amount of incomes below the income tax limit. The President of the Association is Professor T. J. Bonney, and the general secretaries are Major A. P. MacMahon and Professor W. A. Herdman. The next meeting of the Association will be held in Portsmouth under the presidency of Sir W. Ramsay.

**ADVENTISTS, SEVENTH DAY.** A religious denomination which originated in 1845. It is based on the belief that the second coming of Christ is near at hand, founded on the fulfillment of the historic prophecies of Daniel and Revelation and on the teachings of Christ regarding signs of his first appearance in Matthew 24, and Luke 21. Many who at first composed the organization had been associated with the Advent movement of 1840-44, which numbered

thousands of believers in the United States and Europe. One of the leading doctrines of the believers at that period was that Christ would come in 1844, according to the prophecy of Daniel 8:14, and the passing of that date and the consequent disappointment led to further investigation with the result that those who later founded the Seventh-day Adventist body saw that, instead of this earth being the sanctuary to be cleansed, the sanctuary referred to was the temple of Christ's ministry in heaven, the cleansing being the work of investigation and judgment described in Daniel 7:10, to precede the second advent. Thus there arose in New England in 1845 a body which, while believing in the second coming of Christ have never set a date for that event, but hold to the Scripture statement that it is near. According to the United States census of 1906, published in 1910, the Seventh-day Adventists numbered 62,211 communicants, 488 ministers and 981 churches. The property was valued at \$1,454,087. In the Sunday Schools of the denomination there were 50,225 scholars with 11,033 teachers. According to data gathered by officers of the denomination, there were at the close of 1910, 22 union conferences, 107 local conferences, 135 foreign mission stations, 33 being in non-Christian lands, and over 2500 churches in eighty of the principal countries of the world, with 100,931 communicants. The denomination spent in 1910 approximately \$2,000,000 for the support of evangelical work. In institutional lines the work is represented by 83 colleges, academies and intermediate schools, and 579 primary schools. There are 27 denominational publishing houses which print 125 papers. The publications are issued in 65 languages. The denomination also operates over 80 sanitariums, with which there are connected over 2000 physicians and trained employees. The next general conference of the denomination meets in 1913.

In addition to the Seventh-day Adventists there are several bodies bearing the name of Adventists which have practically nothing in common with the former, except possibly the doctrine of the second coming of Christ, and even there the connection is remote. These bodies, with their membership in 1906 are as follows: Evangelical Adventists, 481; Advent Christian Church, 26,709; Church of God, 354; Churches of God, unattached congregations, 257; Life and Advent Union, 509; Churches of God in Christ Jesus, 2124.

**ADVERTISEMENTS.** See SCENIC AND HISTORIC PRESERVATION SOCIETY.

**AERONAUTICS.** Following the usual custom of the YEAB BOOK, the material dealing with the progress of the navigation of the air in 1910 will be found treated under this head, although such topics as mechanical flight by machines heavier than the displaced air are quite different from questions involving merely spherical balloons which drift in the air as driven by winds and air currents. Accordingly below will be found a division into aviation, dirigible balloons, and aerostats or non-dirigible balloons, while under MILITARY PROGRESS will be found several paragraphs discussing the application of aeroplane and dirigible to war.

#### AVIATION

The year 1910 was memorable in the development of aviation for the large number of remarkable exploits. Various prizes and competitions stimulated the activity of the aviators;

and while there was a regrettable loss of life due to failures of machines and other accidents, yet in the main considerable progress was made, and this was manifest in the constant improvement during the year in the records for distance, speed and altitude. The list of inventors and aviators engaged in practical flying with various types of machines grew rapidly and at the end of the year was truly remarkable. This was shown by the fact that on December 31 there were 42 machines in flight for records for the Michelin Cup.

During the year the different features of the difference types of aeroplanes were carefully considered and in many cases these were adopted or modified, so as to combine in a single machine the most efficient methods of arrangement and manipulation. The wing warping method for lateral control which originated in America with the Wright brothers and was one of the fundamental features of their biplanes continued to be the prevalent method for lateral control, yet the ailerons which were important elements of the Curtiss aeroplane found use on other types of machines. Most biplanes adopted the rear elevating rudder which was found to give fore and aft stability so successfully to the monoplanes. The perfection to which the aeroplane motor had been brought in previous years did not leave room for great improvement in itself and the favorite motor seemed to be the revolving Gnome on account of its reliability and the light weight for the power produced. Aeronautical engineers were pleased to state that a distinct type of motor for aviation had been evolved and that they were quite independent of the automobile engineers. Many of the accidents that occurred to different aeroplanes were found to result from defective construction, and it was the general opinion that design and making must be very carefully considered and a larger safety factor introduced in making the machines.

At the beginning of the year the leading types of machines seen in the United States and Europe were the Wright, Curtiss, Voisin and Farman biplanes, and the Antoinette, one-seated Bléruit, the two-seated Bléruit and the Santos-Dumont monoplanes. All of these underwent greater or less improvement during the year under review.

**BIPLANES.** The new Wright machines brought out in 1910 were conspicuous by the absence of the double surface horizontal rudder elevating in front. The tail surface had an elevating rudder and the two vertical surfaces which were formerly placed in front of the aeroplane were cut down in amount and were carried on the skids. The vertical portions of the Voisin biplane used to give lateral stability similar to those of the cellular kite were replaced by ailerons which were employed also by Curtiss and Farman. Lateral stability was obtained either by employing these ailerons, or, as was done by the Wrights, by warping the sustaining planes, though this is apt to weaken the transverse frame of the machine. The warping device, however, is found generally in monoplanes, but in the very large biplanes the ailerons are more generally employed. The horizontal rudder behind was found in the case of the Voisin and Henri Farman biplanes, while in the machines of Maurice Farman and Sommer the combined forward and aft rudders are used. French critics at the end of the year believed that the

single horizontal rudder placed at the stern brings the monoplane nearer to the model of a bird and preserves equilibrium better than the use of the forward rudder often seen in the American type of biplane. Two new French biplanes appeared during the year, those of Bréguet and Goupy. With two surfaces a greater load can be carried on account of more sustaining power, and this was considered one of the strongest points in favor of the biplane, the monoplane making during the year some wonderful speed records.

**MONOPLANES.** But little change was noted in the construction of monoplanes during the year except their gradual improvement and better adjustment. This type of aeroplane opposes less resistance to forward motion and therefore secures greater speed with equal power, as was clearly demonstrated in many important flights and competitions. It was found to maintain its equilibrium better in high winds on account of its greater velocity and its greater weight in proportion to its surface, and because the single support surface was less affected by gusts and eddies in the atmosphere than the double surface of the biplane. In fact one of the most important lessons of the Rheims aviation meet was that the monoplanes fared much better in weathering a gale. The Antoinette monoplane remained in exactly the same form at the end of the year as it was at the beginning, and but few modifications were made in the one-seated Blériot. The double-seated Blériot was made with seats side by side for pilot and passenger, and this promised increased usefulness for military reconnoitering as the observer was independent of any operation of the machine. The Santos-Dumont monoplane also remained unchanged and achieved considerable success during the year. Its deficiency was thought to lie entirely in the motor as all the machine needed apparently was a sufficiently light, low-powered motor, a type which had not been developed to the needed efficiency and reliability.

A new French monoplane of the year was the Hanriot, similar in many respects to the Antoinette and showing some good performances. The Tellier machine was a modified Blériot, while the Nieuport was built with very small resistance to forward motion. The Sommer monoplane also resembled that of Blériot. Typifying the tendency of French inventors to copy the general form of the bird was the monoplane of Esnault-Pelterie, which resembled a great bird and was considered by many one of the most beautiful of the monoplanes of the year.

**CONSTRUCTION AND CONTROL.** All of these typical machines were made in different sizes, varying as regards the power of their engines and the areas and curvature of their planes. Many of these resulted from practical tests with the dynamometer, though the building of aeroplanes was still more a matter of experiment than of calculation. Increased safety was procured by placing the aviator behind the motor, and this was typical of the more recent machines, though in others the pilot was placed either in front or at the side as in the case of the Wright machine. Practically all aeroplanes now start from wheels, the Wright brothers being among the last to adopt this method, though with machines of increasing size and power it may be necessary to employ again the skids and rails as used with the first Wright aero-

plane. The best practice at the end of the year was considered to employ both skids and wheels, the former being used in landing to take the load from the wheels and stop the machine quickly, or to land on the skids alone.

The control of many of the different types of machines did not vary greatly although naturally there were minor differences and often aviators were able to handle the machines of different makers. With many of the latter, stock sizes were developed and machines with all their parts carefully finished were being turned out from European factories. Steel tubes were beginning to be used for the frames not being as liable to be warped as wooden frames, especially when exposed to dampness. The matter of wood and steel for frames was an open question there being advantages for both materials, but the use of steel ropes in the place of piano wire was becoming more general. The wooden propeller was being used almost entirely in place of the metal propellers originally employed by some makers and for them a direct drive was preferred. The propellers were increased in size from about 7 feet to 8½ or 9 feet and were used singly except in the case of the Wright or the Lioré, where twin propellers were used.

**AEROPLANE MOTORS.** In regard to motors for aeroplanes we have noted that a distinct type of aeroplane motor had been evolved and no longer were makers of monoplanes and biplanes dependent on the work of automobile engineers. One of the best performances of the year was that of the Antoinette water-cooled motor which accomplished 13,000 miles in one week at the Bordeaux aviation meeting. Such a record would be an enviable one for an automobile engine and when it was recalled that this is the work of a powerful engine where extreme lightness of weight was the prime requisite, it was most extraordinary.

All things considered, however, the Gnome motor was considered the best of the light weight types as it was employed with many machines accomplishing notable flights. It was demonstrated during the year that this motor was as well adapted to monoplanes as to biplanes, and its gyroscopic action did not have the dangerous effects anticipated. The rotary motor had become an established fact and was thought to represent a true type of aeroplane motor which eventually must take the form of the gas turbine engine. Aviators were demanding a lightness and a small consumption of fuel.

**NEW TYPES OF AEROPLANE.** The most original and interesting aeroplanes of the year exhibited at the Paris Aviation Salon were those of Fabre and Coandré. The Fabre machine had a trussed frame of considerable strength and was able to rise from and to light on the water, being the first aeroplane to accomplish this feat successfully. The Coandré aeroplane was designed to reduce to a minimum the resistance to progressive motion and had wooden wings which some critics considered lacking in strength. The inventor at the end of the year was engaged in developing a turbine which he hoped would produce considerable power. The Paris Aviation Salon was not, as usual, productive of novelties and it was stated that the leading inventors and manufacturers were developing and testing machines in which new ideas were embodied rather than exhibiting in their latest achievements. In their behalf it was said

that the mechanical and commercial reputations of such makers as the Wrights, Blériot, Farman, Voisin and others had reached a point where they did not dare to show an invention in an experimental stage.

Critical authorities in 1910 reached the conclusion that aviation had arrived at a point where it was not unreasonable to demand aeroplanes of sufficient size and strength for general touring, so built that they would not break in the air and could start from the ground under ordinary conditions. The machine had now reached a point where comfortable cars mounted inside the frame should be installed for the pilot and passengers and these cars should afford protection against any shocks due to landing on bad ground. Another desideratum was a better method of stopping the aeroplane after landing. At the end of the year the opinion was generally advanced that the aeroplane had developed to a point where it could be compared with the early history of the automobile. Thus in a few years the long-distance races would be reached and soon efficient engines and machines for ordinary use would be designed.

On the theoretical side much remained to be done by improving the forms of wings and propellers and diminishing resistance to forward motion. Smaller angles of ascent were possible.

#### MEETS AND COMPETITIONS

During the year there were many aviation meets held at which prizes of great value were offered, so that the professional and exhibition or commercial side in addition to sport and experiments became conspicuous.

**LOS ANGELES MEET.** The first aviation meet to be held in the United States took place at Los Angeles, California, beginning January 10th. For the first time in the United States a number of foreign types of aeroplanes were in competition with those of Americans. Two Farman biplanes and two Blériot monoplanes were shown; also three Curtiss biplanes, operated respectively by C. F. Willard, C. K. Hamilton and Glenn H. Curtiss. The first noteworthy feature of the meeting was the breaking of the world's record for altitude made but six days before by Latham in France. This figure, 3444 feet, was considerably exceeded by Paulhan whose record was 4165 feet. Paulhan further succeeded in showing the weight-carrying abilities of the Farman aeroplane by flying with two passengers. On January 20th, Curtiss made the longest flight that up to that time he had accomplished, passing around the course thirty times or forty-eight and three tenths (48.3) miles in 1 hour, 16 minutes and 39 seconds. Paulhan, however, was able to make thirty-five circuits of the course and a distance of 36.35 miles in 1 hour and 34 minutes and 34 seconds.

**LONDON-TO-MANCHESTER RACE.** An important sporting event took place on April 27th and 28th in England. This was the race between London and Manchester for a prize of \$50,000 offered in 1907 by the London *Daily Mail*. The conditions of the flight provided that the trip should be made within twenty-four hours and with not more than two stops en route. On April 23rd, Claude Grahame-White with a Farman biplane in attempting this distance was forced to give up after traversing 115 miles. On April 27th, Louis Paul-

han started from Hendon and flying to Hampstead, five miles from London, crossed the starting line with a special railway train below to guide him. The news of Paulhan's start came to Grahame-White and an hour later, assembling his aeroplane, he started from Wormwood Scrubbs in pursuit of the French aviator. The latter reached Lichfield, 117 miles from London, and there made a landing, as his supply of gasoline amounting to fourteen gallons was exhausted. Grahame-White alighted at Roade near Northampton, after covering a distance of sixty miles in a flight of one hour and twenty-three minutes. Before daybreak next day he was again in the air traveling as far as Polesworth, nearly 100 miles from London after an hour's flight. Although he flew a few miles farther in the afternoon the race was over as far as he was concerned when he reached Polesworth. Paulhan after his stop at Lichfield finished the remaining 68 miles in one hour and twenty-one minutes, reaching Manchester before the special train that accompanied him, thus winning the *Daily Mail* prize and making a flight that was memorable in the annals of aeronautics.

**CURTISS'S FLIGHT FROM ALBANY TO NEW YORK.** A notable cross-country flight took place on May 6th, 1910 when Glenn H. Curtiss made the trip from Albany to New York in a Curtiss biplane weighing 950 pounds and having a surface area of 236 square feet. This biplane was fitted with a 50-horse-power, eight-cylinder water-cooled motor and the longest time it had been kept going in one flight previously had been 38 minutes. An early morning start was made from Albany against a slight wind and the Hudson River was followed as far as Poughkeepsie, a distance of about seventy-five miles. Three miles beyond the railway bridge a landing was made at Camelot, the seventy-four and one-quarter miles of the journey having been accomplished in one hour and twenty-three minutes or at the rate of more than fifty-three and sixty-eight hundredths miles an hour (53.68 an hour). After renewing the fuel and lubrication the trip was resumed and the second stage of the journey extended as far as the north end of Manhattan Island where one hour and nine minutes after leaving Poughkeepsie a landing was made, fifty-three and three quarters miles being covered in this second stage. The third stage, fourteen miles to Governor's Island, was accomplished in twenty-two minutes, the entire trip being made without the slightest mishap. The Curtiss biplane used in this flight was similar in construction to that employed in winning the Bennett Cup in 1909 at Rheims.

**HAMILTON'S FLIGHT BETWEEN PHILADELPHIA AND NEW YORK.** Hardly had this last achievement been recorded when another interesting American flight was made between Philadelphia and New York. This trip was entirely cross country, no river being followed and consisted of a flight from Governor's Island in New York Bay, across the Bay and the Kill von Kull, following the Pennsylvania Railroad to Philadelphia, the direction being given by a white streamer on the roof of a special train. Hamilton's flight for the greater part of the trip was made at the comparatively low elevation of about two hundred feet and ended at Philadelphia 1 hour and 50 minutes from the time of the start. The average speed was estimated at 47.37 miles per hour or 45.22 miles using the entire time and making no deduction for the

various circlings. The return trip was then attempted and for the first thirty-eight miles of the journey a speed of 51.08 miles an hour was averaged. At this time, the engine not running smoothly, a descent was made which resulted in a broken propeller. This being replaced a second start was made and the machine rose under its own power to a height of fifteen hundred feet and completed the trip to Governor's Island. Hamilton's flight was considered the fastest cross-country flight ever executed at the time it was made.

**INDIANAPOLIS MEET.** An aviation meet was held at Indianapolis during the week beginning June 13th, under the auspices of the Wright brothers. In addition to Orville Wright and other aviators, Walter Brookins participated in the flights and made a height record of 4384½ feet. This was broken two days later and a record of 4503 feet achieved. This meet was confined exclusively to the Wright aeroplanes and while there was good flying on the part of the various aviators, yet no large amount of general interest was aroused as was the case where different forms of machines were used.

**RHEIMS AVIATION MEET.** This great annual event in 1910 began on July 3rd. and was noteworthy for the records of speed and distance made by monoplanes which French manufacturers had brought to an increased degree of perfection. Charles Wachter lost his life by the breaking of the wings of his Antoinette monoplane and a number of new speed records were made. An interesting record for distance was made by a Belgian, Jan Olieslargers, with a Blériot monoplane. He was able to remain aloft five hours and three minutes and cover 244 miles in a closed circuit at an average speed of 48.31 miles an hour. This gave him a record distance, duration and speed in long distance flight, which in the first two respects as we shall see was exceeded before the end of the year.

**HARVARD BOSTON MEET.** On September 2nd, at Boston, the Harvard Aeronautic Society opened a very successful aviation meeting. Many of the famous aviators were present and an interesting feature was a bomb-throwing contest in which the model of a modern battleship was used. The object was to drop a bomb from a height of at least 100 feet so that the deck of the model man-of-war should be hit. A shot within the bulls-eye indicating the smokestacks counted 10 points and hits of less vulnerable places of the ship proportionately less. At one time during this meeting there were four machines in the air, which at this time was quite a novel sight for American spectators. An interesting feature of the meeting was a trip from the aviation field to Boston Light and return twice over, a distance of 33 miles. Grahame-White on September 6th, in a Blériot monoplane made this distance in 41 minutes and 35 seconds. On September 12th this trip was repeated by the same aviator and the time reduced to 34 minutes and 11 seconds. A race between Grahame-White and Curtiss for a \$3000 prize was won by the former and seemed to demonstrate the superiority of the monoplane over the biplane for high speed racing. Ralph Johnstone in a Wright biplane made a world's record for accuracy in lighting; his seat being but 5 feet 4 inches from the marking flag when he touched the ground. He also secured the record for duration and distance by a flight

of 101 miles, 389 feet, in 3 hours and 5 minutes and 40 seconds. An interesting world's record also made at this meet was the slow speed record by Brookins, 13 minutes, 48 seconds for 5½ miles or an average speed of 22.85 miles an hour.

**THE INTERNATIONAL AVIATION MEET.** The first large and important meeting of aviators from Europe and the United States to be held in America took place during the last week of October at the Belmont Park race course near Mineola, Long Island, N. Y. It aroused great interest and afforded the American public an opportunity to see in actual flights various types of machines as well as to enjoy what was certainly a most novel and interesting spectacle. The aviation field in the opinion of many of the foreign contestants left much to be desired, while unusually high winds common to the late autumn prevailed and interfered more or less with the programme. Belmont Park was marked off by tall wooden monuments or pylons into two courses for the various competitions. The short one, 2½ kilometers or about 1½ miles in length, was used for the hourly distance and daily speed contests, a large number of which were held both for the benefit of the spectator and to tempt the aviators by the prizes offered. The long course, 5 kilometers or about 3 1-10 miles, was used for the international trophy race for the Gordon-Bennett Cup. The prizes offered aggregated \$74,800 and exceeded in amount those contested for at any previous aviation meet. The various prizes were divided so that the second, third and fourth men in many of the contests received substantial recognition. This side of the meet was emphasized as the making and operation of aeroplanes had become a matter that only was possible to wealthy amateurs or to inventors and manufacturers seeking direct returns or advertising with a view to selling or exhibiting their machines.

All things considered, the meet was very representative and Europe and America joined in showing the best examples of the aeroplane as it had been developed. The entries were as follows:

*France*—Count Jacques de Lesseps (Blériot), Alfred Leblanc (Blériot), Hubert Latham (100 horse-power Antoinette), René Barrier (Blériot), Emile Aubrun (Blériot), René Simon (Blériot), Rollan Garros (Demoiselle), C. Audemars (Demoiselle).

*England*—C. Grahame-White (Farman and Blériot), James Radley (Blériot), Alec. Ogilvie (Wright).

*America*—Ralph Johnstone (Wright), Walter Brookins (Wright), Arch Hoxsey (Wright), Charles K. Hamilton (Curtiss), John B. Moisant (Blériot), J. A. Drexel (Blériot), C. B. Harmon (Farman), H. S. Harkness (Antoinette), C. F. Willard (Curtiss), J. C. Mars (Curtiss), J. A. D. McCurdy (Curtiss), Eugene Ely (Curtiss).

**TYPES OF AEROPLANES REPRESENTED.** The machines here represented all showed improvements on those seen at earlier contests and especially were attempts made to develop high speed. The Wright brothers with their familiar biplanes had entered a new small racing machine. Curtiss, who also had developed the biplane, was represented by a new machine where the upper surface was cut down to a very small amount, leaving the lower surface as the

main supporting plane and making the machine practically a monoplane. Blériot was represented by a number of monoplanes differing somewhat in size and power and owned by aviators of different nations. The Santos-Dumont "Demoiselle" machines, monoplanes of small surface but capable of considerable speed, were also in evidence. The Farman machine was a biplane, while the Antoinette was a monoplane with powerful engines.

Despite rather unfavorable conditions of weather the aviation meet drew great throngs to Belmont Park and the spectators were vastly interested in the exhibition of flight as well as in the actual contests themselves. At times there were as many as fourteen aeroplanes in flight simultaneously while frequently several were in close proximity above the heads of the onlookers. In fact it was by this circumstance rather than as a sporting event that the week's flying should be judged, though in the various contests there was keen competition.

**GORDON-BENNETT CUP COMPETITION.** The most important of these was the annual competition for the Gordon-Bennett Trophy and prize of \$5000. This was contested for on October 29th and consisted of 20 circuits of the 3.1 mile course or 62.1 miles (100 kilometers). In the early morning with perfect weather conditions three competitors started, Grahame-White of England in a 100 horse-power Blériot monoplane, Alfred Leblanc of France in a 100 horse-power Blériot monoplane, and Alec. Ogilvie of England in a small Wright biplane. Leblanc on his last lap met with an accident in which his machine dove to the ground and, striking a telegraph pole, was wrecked. His time for the 19 laps had been 52 minutes, 49.79 seconds, or an average speed of 67 miles an hour. Ogilvie in his flight was forced to descend on account of a faulty spark plug, but resumed flight and was in the air actually 1 hour, 6 minutes, 46.68 seconds, corresponding to an average speed of 55.83 miles per hour. His delay amounted to 59 minutes and 50 seconds, but this did not figure for penalization by the conditions of the race. Grahame-White made the 20 laps in 1 hour, 1 minute, and 4¾ seconds, or an average speed of 61 miles an hour.

This British aviator thus won the trophy, for the American team selected to defend the trophy met with several misfortunes and thus could not develop its full possibilities. As an elimination contest could not be held on account of the weather, three machines were selected to represent America. There were the tiny Wright racer of Walter Brookins, with a 60 horse-power 8-cylinder V-type motor, the Curtiss racer, with a 115 horse-power Chrysler 8-cylinder, V-type motor, of Charles K. Hamilton and a 50 horse-power Blériot monoplane of J. Armstrong Drexel. The Wright machine, which was expected to develop high speed and had passed the starting line at a rate of about 80 miles an hour, a few hundred yards beyond it dropped to the ground striking with terrific force, and damaging the machine severely, though Brookins escaped without injury. Drexel after seven laps in a wind of considerable velocity abandoned the race and Hamilton whose engine failed to work properly was unable to make a single complete circuit of the course. At the last moment John B. Moisant, one of the alternates on the American team, entered the race and reeled off the 20 laps in

1 hour, 57 minutes, 44.85 seconds elapse time making a single stop of about three quarters of an hour after the sixth lap. This gave America the second place, the only other competitor being Hubert Latham in a 100 horse-power 16-cylinder Antoinette monoplane. He was forced to descend after 15 laps, resuming in the afternoon his flight, which he completed successfully, the total elapsed time for the race being 5 hours, 47 minutes, 53.40 seconds.

**THE STATUE OF LIBERTY COMPETITION.** This contest was postponed from October 27th on account of weather conditions, and was held on October 30th with three contestants all in Blériot monoplanes; Grahame-White, Count de Lesseps and John B. Moisant, the first named having a 100 horse-power machine and the other contestants machines of 50 horse-power. The contest which carried with it a cash prize of \$10,000 offered by Thomas F. Ryan, was of interest, inasmuch as the path of the cross-country flight lay over the densely populated city and the East River and New York Bay with a sensational turn at the Statue of Liberty. Naturally the flights were made at a considerable height and the times of the three contestants were very close together, Grahame-White making the journey in 35 minutes 21.3 seconds; Count de Lesseps in 39 minutes 38.5 seconds, and Moisant in 34 minutes 38.5. There were no Wright machines in this competition.

**BELMONT PARK RECORDS.** At the Belmont Park meet a new height record—9714 feet—was made by Johnstone in a new small Wright biplane, while a monoplane record of 8373 feet was made by Drexel. During the week the various aviators were in the air endeavoring to secure records that would count in the aggregate for the totalization of duration and distance prizes. The winners of these contests were as follows:

#### TOTALIZATION OF DURATION

Aviator	Time	Prize
Hoxsey	7:29:21.85	\$3000
Johnstone	4:47:44.40	1500
Grahame-White	4:37:55.85	1000
Latham	4:11:21.20	500

#### TOTALIZATION OF DISTANCE

Aviator	Laps	Prize
Grahame-White	106	\$1500
Latham	103	1000
Aubrun	59	500

**LOS ANGELES AVIATION MEET OF DECEMBER, 1910.** The city of Los Angeles enjoyed the credit for the height records made at the beginning and at the end of the year 1910. On January 10th, we have seen how Louis Paulhan reached a height of 4164 feet in a Farman biplane, while Glenn Curtiss travelled aloft with a passenger at a rate of 55 miles an hour. The world's record for the year was made at the same city on December 26th when Arch Hoxsey in a standard Wright machine flew to a height of 11,474 feet. This record was made on the third day of the December meeting and Hoxsey was in the air for two hours. At this meeting the Antoinette monoplane record was broken by Hubert Latham, who flew for 2¼ hours. Previous to his public flights Latham had attempted duck-shooting from a monoplane and by



Photo by Edwin Levick, New York

**BELMONT PARK**  
General View, with Latham, Drexel and Johnstone in Flight



Photo by Edwin Levick, New York

**BABY WRIGHT**  
Orville Wright in Seat

**AËRONAUTICS**

8201

driving the ducks from the marsh out over the ocean he was able to bring down several. On December 28th there was a 5-lap race between the Curtiss machine driven by Ely and a Wright biplane driven by Parmalee in which the former won, making  $8\frac{3}{4}$  miles in 10 minutes 5 3-5 seconds. Radley, an English speed champion, on December 29th, using a Blériot machine, defeated Ely on his Curtiss, the former using a "baby" Wright. Radley's time was 9 minutes 13 1-5 seconds for a distance of  $8\frac{3}{4}$  miles. At this meet, Hoxsey made a cross-country flight to Mt. Wilson, circling the mountain at an altitude of 8200 feet. The closing days of the meeting were seriously marred by the death of Hoxsey in an accident.

**MICHELIN CUP.** The annual records of the competition for this important prize which is valued at about \$4000 and is awarded for the longest flight in a closed circle during the year offered most interesting evidence of the progress of aviation. This trophy was won in 1908 by Wilbur Wright who covered 78 miles in 2 1-3 hours. The following year Henri Farman, received the cup with a record of 126 miles in 4  $\frac{1}{4}$  hours. In 1910 the competition was comparatively keen and even up to the last day on December 31st, flights were made with the hope of winning this cherished trophy. Maurice Tabuteau with a Maurice Farman biplane in a series of prolonged distance flights during the year held the best record until December 21st, when it was taken from him by Legagneux with a flight of 320.62 miles in six hours and one minute in a Blériot monoplane. On December 30th, M. Tabuteau in a Farman biplane made a record of about 365 miles in seven hours, and this record stood at the end of the year and carried with it the Michelin Cup. On the last day of the year H. Farman endeavored to repeat his performance of 1909, but was unable to secure more than 309 miles in 7 hours. Nor was he the only aviator in the competition for this trophy on December 31st. Forty-two other attempts were made, and as showing the general interest in aviation it may be said that a hitherto unknown aviator, Marie, made his appearance and flew 331 miles. Breguet covered 205 miles and Sommer 109 miles.

**THE SCIENTIFIC AMERICAN TROPHY.** This first aeronautical trophy to be offered for competition in America was won for the third time by Glenn H. Curtiss and thus becomes his permanent property. His first leg on this trophy was gained in 1907 by a flight of slightly over a mile in his then new biplane. In 1909 the flight from Albany to Poughkeepsie of  $74\frac{1}{4}$  miles without a stop was the best achievement in competition for this cup.

**DEFOREST PRIZE.** The prize of \$20,000 offered by Baron DeForrest for the longest flight including the crossing of the English Channel made by an Englishman in an English-made machine was won by Thomas Sopwith, with a flight of 174 miles in a Howard-Wright biplane on December 18th. Leaving Sheppey Island he crossed the Channel to Dover and from Dover he went to Calais and landed on the Belgian frontier. While competing for this prize Grahame-White met with a bad accident on the same day, and Cecil Grace the only other competitor who started in the flight across the Channel, perished on his return trip. He was flying a Short-Wright biplane and left France on December 22nd with fuel for a five

hour trip. It was thought that he mistook the English cliffs for fog banks and steered away from shore and was lost in the North Sea.

**MICHELIN BRITISH PRIZE.** The Michelin British Empire prize of \$2500 for the longest flight by a British aviator and a British-made machine over a marked circuit was won by Capt. F. F. Cody of the British army balloon division. On December 31st he ascended at Farnborough and flew approximately 195 miles in 4 hours and 51 minutes. The best previous flight for the year was  $147\frac{1}{2}$  miles made on December 28th in a flight by A. Ogilvie in Sussex. Cody, it will be remembered, was a former American who became a British subject to supervise the balloon work of the British army, while Ogilvie was a member of the British team in the International Aviation Meet, at Belmont Park, where he operated a Wright biplane.

An interesting event was the trip of J. B. Moisant, an American, from Paris to London, carrying a passenger. The distance from Paris to Amiens was made in two hours on August 16, from Amiens to Calais in two hours and six minutes and the crossing of the Channel was made in 37 minutes. An unfortunate accident thirty miles from London prevented a complete journey to the British metropolis which was reached eventually on September 6th. The journey from Paris to Brussels, 180 miles, has also been made with a passenger, while Farman in his biplane carried two passengers on a 62 minute flight and Kinet carried one passenger on a flight of 2 hours and 20 minutes. A Sommer biplane made a trip with three passengers for a 5 minute flight and an H. Farman biplane was able to make a very short flight of two circuits of the course with six people on board. This passenger-carrying capacity indicated an increased use of the aeroplane for military reconnoitering and observation, as one or more observers are left free to photograph or otherwise record features of interest while the aviator himself controls the machine.

**CHAVEZ CROSSES THE ALPS.** The first crossing of the Alps by an aeroplane was made on September 23rd, by Georges Chavez, who on September 8th had made a word's altitude record at Issy-les-Moulineux, reaching a height of 8790 feet. He started from Brigue and flew towards the Simplon Culm passing to the right of the summit and crossing the Col de la Montscera whose height is about 8202 feet. Forty-two minutes after his departure he reached the Domodossala Valley, where the wings of his aeroplane broke and he fell to the ground meeting with an accident which forced him to retire to a hospital and ended fatally a few days later. Although the conditions of the competition which required a flight to Milan were not fulfilled, nevertheless this first passage of the Alps was attended with many sensational features due to the high winds and low temperatures which were experienced among the mountain peaks.

**FEMINA CUP.** The Femina Cup for the best record by a woman aviator was won by Mlle. Hélène Dutrieu with a record of  $103\frac{3}{4}$  miles in 2 hours, 35 minutes made on Dec. 21st with a Farman biplane. Jane Herven on December 31st attempted to win this cup but was only able to cover 90 miles in 2 hours. Mlle. Dutrieu, who had received a pilot's license in August, distinguished herself also by a trip with a pas-

senger from Ostend to Bruges and back in record time, a distance of 28 miles.

THE PATENT SITUATION IN AMERICA. Various legal complications involving the use of basic and other patents in connection with the aeroplane had taken place in the United States, and it was believed in some quarters that many difficulties would attend the bringing out of new types of machines by American manufacturers. Preliminary injunctions had been obtained by the Wright brothers against Curtiss and Paulhan and under these interlocutory decrees the Wright brothers were able to control flying in the United States for the several months they were in force. These injunctions were dissolved by the U. S. Circuit Court of Appeals and made possible the appearance in the United States of the various foreign aviators whose machines figured so prominently in the Belmont Park and subsequent meets.

ALTITUDE RECORDS. The following list of the principal height records of the present year taken from the *Scientific American* shows at a glance the rapid progress that was made in aeroplane climbing during 1910.

Aeroplane Altitude Records in 1910:

Dates.	Aviator.	Machine.	Country	Alt., Feet.
Jan. 7.	Latham.	Antoinette monoplane	France.	3,280
Jan. 12.	Paulhan.	Farman biplane....	U. S.	4,165
July 9.	Brookins.	Wright biplane....	U. S.	6,171
Aug. 11.	Drexel.	Blériot monoplane	Eng.	6,600
Sept. 3.	Morane.	Blériot monoplane	France.	8,471
Sept. 8.	Chavez.	Blériot monoplane	France.	8,485
Oct. 8.	Wynmalen.	Farman biplane....	France.	9,104
Oct. 31.	Johnstone.	Wright biplane....	U. S.	9,714
Nov. 23.	Drexel.	Blériot monoplane	U. S.	9,897
Dec. 9.	Legagneux.	Blériot monoplane	France.	10,499
Dec. 26.	Hoxsey.	Wright biplane....	U. S.	11,474

THE FATAL ACCIDENTS OF THE YEAR. While there was considerable progress in aviation during the year 1910 yet it was marked by an extraordinary list of fatalities which possessed more than usual significance in view of the fact that a number of the most skillful aviators lost their lives under conditions particularly distressing. In the list given below, which includes the names of more important air-men who were killed, will be found a number whose records and exploits have been discussed in previous paragraphs. At the end of the year which was marked by several serious fatalities the conclusion was general that lack of care in flying had been manifested by a number of aviators and that in the construction of machines a sufficient factor of safety had not been employed. Furthermore the demand of the spectators at the large aviation meets had been for sensational performances and many of the aviators, anxious to gain the applause of the crowds, had taken chances which prudence should not have permitted. The record below also tells of an increased number of fatalities caused by failure of the aeroplanes themselves. The breaking of various parts of machinery, or imperfect repairs, stopping of engines and other such misfortunes, were not infrequent and called for careful attention in future flights.

The following list gives the more important fatalities due to the accidents with aeroplanes during the year 1910:

January 4th, Léon Delagrangé met his death by a fall in a Blériot monoplane at Bordeaux.

April 2d, Hubert Le Blon was killed at San Sebastian, Spain, in a Blériot monoplane.

May 13th, Hauvette Michelin was killed at Lyons in an Antoinette machine. This accident occurred when the machine was on the ground, and was the result of a collision with a pylon.

June 17th, Eugene Speyer was killed in a glider towed by an automobile at San Francisco, Cal.

June 18th, Thaddeus Robl was killed at Stettin, Germany, in a Farman biplane.

July 3d, Charles Louis Wachter, a French aviator, was killed at Rheims in an Antoinette machine.

July 10th, Daniel Kinet, a Belgian aviator, dropped in a Farman machine from 300 feet at Ghent as the result of motor trouble. He died five days later.

July 12th, the Hon. C. S. Rolls was killed at Bournemouth, England, in a Wright biplane of French construction.

August 3d, Nicholas Kinet, Belgian, brother of Daniel, was flying 650 feet up when a rear wire in his Farman biplane became entangled in the motor mechanism, stopping the engine. The machine dropped.

August 20th, Lieutenant Marquis Vivaldi of the Italian Army, killed near Rome in a Farman biplane. In descending he lost control.

August 27th, Van Maasdyk, a Dutchman, was making a cross-country flight in a Sommer biplane when the motor stopped, causing the machine to turn turtle.

September 23d, Georges Chavez, Peruvian, after a flight over the Alps from Brigue, Switzerland, on a Blériot machine. He tried to make a landing within thirty miles of Milan. He was within thirty feet of the ground when the wind caught his aeroplane and dashed it to the ground. Chavez died September 27.

September 25th, Edmond Poillot, Frenchman, killed at Chartres, France, while flying with a passenger, who escaped with slight injuries. The machine was up 90 feet when a piece of canvas was ripped from one of the planes, causing it to overturn backwards.

September 28th, Plochmann, German, was in a machine that collapsed near Muhlhausen, Germany, at a height of 150 feet. He died the next day.

October 1st, Herr Haas, German, killed at Wellen, on the Moselle River, Germany, by a fall from his aeroplane. Cause unknown.

October 7th, Captain Mazlewitch, of the Russian Army, fell from a Farman biplane at St. Petersburg when up 1640 feet. Due to failure of motor.

October 23d, Captain Madolton, French Army, at Douai, France, was flying 100 feet up and tried to stop his engine, and plane fell to the ground. The engine refused to stop and the machine upset.

October 25th, Lieutenant Mente, German Army, killed near Magdeburg while planing to the ground in a Wright machine. It turned turtle and he was instantly killed.

October 26th, Fernando Blanchard, Frenchman, at Issy-les-Moulineaux, France, was preparing to land at the finish of a 140-mile flight from Bourges. He was going at great speed about 120 feet up when he lost control of his monoplane.

October 27th, Lieutenant Saglietti, Italian Army, was killed at Centosello, Italy. The aeroplane tipped and Saglietti was unable to right it.

November 17th, Ralph Johnstone was making a spiral glide in a Wright biplane at a height of 800 feet, at Denver, when the lower left plane of his machine broke and the machine passed from his control. Accident due to imperfect repairs of parts broken a few days previously.

December 3d, Lieutenant Cammarata, Italian Army, while flying with a soldier near Rome, in a Farman biplane, lost control of the machine, and it dropped. Both were killed.

December 22d, Cecil Grace perished at sea while flying on a return trip across the English Channel from France. He was flying a Wright biplane.

December 25th, D. Piccollo killed in an Antoinette machine at São Paulo, Brazil.

December 28th, Alexandre Laffont fell 200 feet on what was to have been the start of a flight to Brussels in company with M. Paula, who owned the machine. The latter was also killed.

December 30th, Lieutenant Caumont, French

Army Aviation Corps, while testing a new monoplane at Versailles, fell sixty feet and died soon afterward.

December 31, John B. Moisant, American aviator, winner of the Statue of Liberty Flight prize, killed near New Orleans, La., while trying for the Michelin prize, in a Blériot monoplane.

December 31st, Arch Hoxsey, the famous Wright aviator, killed at Los Angeles, Cal. After a flight to a height of 7142 feet and a descent to about 500 feet his machine was overturned and carried to the ground. Hoxsey was killed instantly.

**DEATH OF OCTAVE CHANUTE.** No record of the progress of aviation in 1910 is complete without mention of the death of Octave Chanute (q. v.), a biographical sketch of whom appears elsewhere in this volume. With that of Professor S. P. Langley Mr. Chanute's pioneer work for artificial flight in America will be held for many years in high appreciation.

### DIRIGIBLE BALLOONS

**THE WELLMAN AMERICA.** A notable event of the year was the attempted crossing of the Atlantic Ocean by Walter Wellman in a large dirigible balloon. Mr. Wellman previously had endeavored to reach the North Pole, leaving a base in Spitzbergen, and two attempts were made in a specially constructed and huge dirigible balloon. The airship used in the flights for 1910 was not the same as that which figured in his previous polar expeditions. The balloon was cigar shaped and contained six ballonets filled with air and fitted with valves. It was increased in size to an over-all length of 228 feet, with a diameter of 52 feet. It had a lifting capacity of 23,650 pounds and the leakage of the gas was reduced to a minimum by the form of its construction, two layers of silk being united with rubber to one of cotton. It was extremely flexible and to it was attached a long car made up of steel tubing in the form of a truss triangular in its cross section, and 156 feet in length. This gave rigidity to the balloon and afforded accommodation for machinery, stores, and crew. The bottom chord of the truss was a hollow cylindrical steel tank in which the gasoline was stored. Tubular extensions of this tank carried to the end of the truss completed its structure, while various stays and brackets stiffened the frame work, the car proper being enclosed in canvas. The motive power was provided by gasoline engines at the centre of the car, of 80 to 90 horse-power, while a smaller or donkey engine was used for a variety of purposes, such as cranking the main engines, and driving a blower to inflate the ballonets. Each shaft was connected by gearing with the propellers, the forward pair being 11 feet 8 inches in diameter, and the aft pair 10 feet 4 inches. The latter could be given an angular motion in a plane parallel with the car so that its direction up or down could be varied at will, thus obviating the necessity for stabilizing planes or sliding weights found in other dirigibles. Sleeping accommodations for the six men composing the crew were provided by hammocks, while below the car was suspended a life boat 27 feet in length and of 6 feet beam, which was well stocked with food, carried a mast and sail, and was to be the refuge for the crew in case of accident to the airship. There was a knife device to be used to rip open the balloon in case a sudden descent was necessary, while a quick releasing arrangement was fitted to the suspension of the boat. There was also a wireless telegraph ap-

paratus with current supplied from a storage battery charged from a dynamo driven by the donkey engine. The engines and propellers were designed to give a speed of 26 miles an hour with both engines working, or 20 miles with one in operation. Theoretically six days would be required to cross the ocean in a calm, but provision was made for a ten days' trip with five tons of gasoline. The forward engine was designed to burn hydrogen as well as gasoline by having a special hydrogen carburetor and as the hydrogen was drawn from the ballonets its place was taken by air forced in from the blower. Suspended from the centre of the car was the equilibrator supported by cables fore and aft. This novel device 330 feet in length took the place of the drag rope of the dirigible balloon, and consisted of 30 steel tanks strung together on a cable. These tanks carried gasoline and as they were exhausted relieved the balloon of weight and compensated for loss of gas. Furthermore the equilibrator dragged in the water, the aim being to keep the airship about 200 feet above sea level. In designing the craft there was associated with Mr. Wellman, Melvin Vaniman, as chief engineer, a man who had had considerable experience in the construction of airships and aeroplanes.

**VOYAGE OF THE AMERICA.** This wonderful airship was assembled at Atlantic City, N. J., but was never tested before its first and final cruise. Considerable scepticism was expressed as to whether any real flight would ever be made, and the unsuccessful polar expeditions were recalled by many whose faith in the proposed trip was very doubtful. But on October 15, at daybreak, in almost dead calm and fog, everything was finally rigged and at 8 o'clock the huge craft drifted out to sea. At first satisfactory progress was made, but after about four hours the after-engine failed. The pounding action had worked the bevel-gearing loose. Up to 4 P. M. on Sunday the second day the course was maintained, though the ship strained and the equilibrator, dragging and pounding on the water, interfered with the motion of the airship. About 9 o'clock in the evening a fierce northeast wind struck the ship and gasoline and other supplies as well as the useless engine were cast loose on account of the cold shrinking the balloon which otherwise would have been dragged down to the water. Then under the hot sun of the following day the gas expanded and the balloon was carried up to a height of about 3000 feet and then again as the gas was permitted to escape the balloon sank rapidly. The wind was carrying the balloon in a southerly direction somewhat to the east and it was hoped that the Azores Islands could be made, but a subsequent shift in the wind made this impossible and it was also necessary to jettison more gasoline.

By Tuesday it was realized that any continuation of the voyage would be as foolish as barren of results, and when the steamer *Trent* hove in sight early in the morning when it was still dark, it was determined to abandon the airship. It hardly could have been kept in the air for more than another day, while the problem of launching the life boat and remaining in it until rescued was indeed serious. However, while the *Trent* stood by, the crew stored their records and the material they could save on the life boat and cut loose from the airship on which the valves were opened so as to permit the escape of

gas and prevent the balloon from becoming a menace to navigation. The men from the airship were taken aboard the steamship and the *America* settled nose down in the water soon to disappear. This voyage, though unsuccessful as a transatlantic trip, was, however, in many ways remarkable. A record of 71½ hours in the air was made for a dirigible balloon as against 36 hours for Zeppelin and a total distance of 1008 miles without coming to earth was recorded in the log book as against 800 by Zeppelin. The one significant failure was the failure of the after motor, but otherwise the structure and machinery proved satisfactory, and the chief engineer, Mr. Vaniman, was confident that the ocean crossing could be made by such a dirigible.

**ZEPPELIN AIRSHIPS.** An accident to the Zeppelin type of airship occurred on April 25th when the huge dirigible Zeppelin II was torn from its anchor in a storm and carried away in a northwesterly direction. An attempt had been made by two companies of soldiers to hold the vessel against the force of the storm but in order to prevent a serious accident the soldiers were ordered to release the anchoring cables and the balloon was driven into the Lahn valley where it was caught broadside by a violent gust and brought down to the earth, being completely wrecked in the telegraph wires and poles along the railway. This airship, since 1909, had been used by the aeronautic division of the German army and had participated in the manoeuvres of that year. It had a volume of 15,000 cubic metres, a length of 136 metres and a maximum diameter of 13 metres. It was capable of a speed of 28 miles an hour and could carry passengers and supplies aggregating 8800 pounds. It weighed in all about 23,100 pounds and the balloon proper was made up of 17 gas cells.

The various dirigible balloons designed and constructed by Count Zeppelin reached what was believed to be a high state of perfection in the Zeppelin VII or *Deutschland*, which commenced a series of what were intended to be regular trips carrying passengers. An important trip was made on June 2, between Friedrichshafen and Düsseldorf, 311 miles, and the nine hour journey was made at the rate of 33½ miles per hour. Several trips were made with as many as 20 passengers in addition to a crew of 12, and the enterprise seemed on a successful basis when a few weeks later the *Deutschland* was caught in a storm and driven into a forest where the great balloon was destroyed on June 28th. The Zeppelin VI was destroyed by fire caused by an explosion on September 14th. This airship also had done a considerable passenger carrying business.

**THE WILLOWS DIRIGIBLE.** An English dirigible balloon was designed and operated by E. T. Willows of Cardiff and made some trips during the latter part of the year. The first journey of importance was from Cardiff to London, a distance of 139 miles, and on November 4th a trip across the Channel to Paris was attempted, leaving its hangar at Wormwood Scrubbs, West London. On November 4th, after circling the Nelson Monument in Trafalgar Square, Willows laid a course to the south of England coasts, following the railway line and then crossed the Channel, intending to make a complete journey to Paris. Unfortunately he lost his bearings and was forced to descend at Douai on account of a severe gale. Willows's balloon, which was named the "City of Cardiff,"

was of fish shape and measured 83 feet in length by 22 feet maximum diameter, with a capacity of 20,000 cubic feet. This airship, all things considered, worked very successfully and with better weather conditions it could readily have made the trip from London to Paris.

**CLEMENT-BAYARD II.** Another important flight was that of the Clement-Bayard II, a British dirigible which made a successful trip from Paris to London on October 16th, accomplishing the journey without a stop in a little over 6 hours. This ship was subsequently purchased by the British War Office.

#### NON-DIRIGIBLE BALLOONS

**GORDON-BENNETT CUP RACE.** The 1910 competition for the Gordon-Bennett International Balloon Trophy was held at St. Louis and resulted in one of the most successful events of this kind ever held, and one in which the world's record was all but broken. This competition is for non-dirigible balloons without mechanical motors, and the skill of the aeronauts is employed mainly in attaining levels where the most favorable air currents prevail. The race was started from St. Louis, Mo., on October 17, 1910, there being ten contestants as listed below. The winning balloon was *America II*, Allan R. Hawley, pilot, and Augustus Post aid, and its trip was one of the most thrilling in the history of aeronautics, the final descent being made in Canada many miles from civilization. For nine days the world at large was without tidings of these adventurous aeronauts and it was believed that they had met with disaster, but eventually after being in the air about 40 hours they landed in the township of Lake du Banc de Sable in Quebec and slowly made their way to civilization. The start of the trip was made at 5:46 P. M. on October 17, 1910, from St. Louis and a course in general northerly and north by east was maintained across Missouri, Illinois, Wisconsin, Lake Michigan, Michigan, Lake Huron, the great Canadian Wilderness, and into Quebec as far as Lake St. Johns where it was deemed essential to begin a descent towards the earth. This long trip was made possible by the great buoyancy of the balloon which was able to rise to a height of from 14,000 to 16,000 feet during its journey over the province of Quebec, and six bags of ballast remained at the end of the trip which easily could have been prolonged across the uninhabited wilds of Labrador to the Atlantic Ocean. The decision to land was followed by a descent at 3:45 on October 19th half a mile from a small lake called Sand Bank Lake, four miles north of Lake Tchoyagama. The balloon was duly packed and then a journey over cliff and boulder to Lake Tchoyagama was undertaken and then to a trapper's camp on the River Blanche where food was obtained and the services of two trappers secured to lead the aeronauts to civilization. These experiences were most extraordinary and the news of their safe arrival in civilization was received with unusual interest. The performance of the German balloon, *Düsseldorf II*, was also good and secured for it second place, but the experiences of the pilot and aid were far less exciting.

**BENNETT CUP SUMMARY.** The following summary gives the names of the participating balloons together with the distances accomplished as corrected by the U. S. War Department, and other information:

*America II* (America)—Allan R. Hawley, pilot; Augustus Post, aid; landed at Lake



Photo by Edwin Levick, New York

**PARIS TO LONDON**  
Clement Bayard at Wormwood Scrubs



Photo by Edwin Levick, New York

**"THE AMERICA"**

**AÉRONAUTICS**

970

Tchotagama, near Peribonka, Que., distance 1171½ miles.

Düsseldorf II (Germany)—Lieut. Hans Gericke, pilot; S. F. Perkins, aid; landed at Kiskisink, Que., distance 1131 miles.

Germania (Germany)—Capt. Hugo von Abercron, pilot; Augustus Blanckertz, aid; landed at Cocococache, Que., distance 1079 miles.

Helvetia (Switzerland)—Col. Theodore Schaeck, pilot; A. Armbruster, aid; landed at Ville Marie, Que., distance 826 miles.

Hamburg III (Germany)—Lieut. Vogt, pilot; W. F. Assman, aid; landed in Lake Nipissing, Ont., distance 756 miles.

Azurea (Switzerland)—Capt. Emil Messner, pilot; Léon Giraudan, aid; landed near Biscota.

Isle de France (French)—Alfred Leblanc, pilot; Walther de Mumm, aid; landed at Pogamasing, Ont., distance 722 miles.

St. Louis No. 4 (America)—H. F. Honeywell, pilot; J. W. Tolland, aid; landed at Hillman, Mich., distance 552 miles.

Conдор (France)—Jacques Faure, pilot; E. G. Schmolek, aid; landed at Two Rivers, Wis., distance 413 miles.

Million Population Club (America)—S. Louis Von Phul, pilot; J. M. O'Reilly, aid; landed near Racine, Wis., distance 317 miles.

**PROTESTS.** At first it was announced that Messrs. Hawley and Post had made a distance of 1355 miles, thus exceeding that of the record trip of Count de Vaulx made in a flight from Paris to Russia in 1900, when 1193 miles was accomplished. As shown above, this is greater than the corrected distance of 1171½ miles of the America II and in 1910 still stood as the record. The Lower Rhine Aeronautic Society protested the award of the cup to Hawley on the ground that his name had not been advertised two months before the race in accordance with the rules of the American Aero Club.

Dirigible balloons had their share of fatalities during the year. Oscar Erbsloeh, one of the most practiced balloonists in Germany, who was the winner of the Gordon Bennett race in 1907, held in the United States and starting at St. Louis, was killed near Aipladen, Germany, with four companions on July 13th, 1910. He had ascended in the dirigible airship of the non-rigid type built by himself and was the victim of an explosion in the air, the cause of which was never ascertained. The airship was 176 feet in length and 33 feet in diameter, being driven by 125 horse power motors capable of propelling the machine at the speed of 28¼ miles an hour.

For the military uses and progress with aeroplanes and dirigible balloons, see paragraphs under **MILITARY PROGRESS**.

See also **NAVAL PROGRESS**.

**AFGHANISTAN.** A central Asian monarchy with an area of about 225,000 square miles. The population (estimated at 5,000,000) is made up of the Durranis (the dominant race), the Ghilzais (the most numerous), the Tajiks, Hazaras, Aimaks, and Uzbaks. Kabul (the capital) has about 70,000 inhabitants; Herat, 45,000; Kandahar, 35,000. Steps have been taken to develop education, thus far controlled by the mullahs. The people are industrious and prosperous, engaging mainly in agriculture and stock raising. Wheat (the staple food), barley, lentils, rice, millet, corn, and *dal* are grown; sheep and transport animals are raised. The mineral products are salt, copper,

coal, iron, lead, rubies, and gold; manufactures, silk, woolen and hair cloth, and carpets. The trade with India (1909-10) amounted to over £2,261,000; with Russia, imports were valued at 4,000,000 roubles, exports at about the same amount. Russia gives bounties and rebates. The Afghan government levies heavy customs duties. No figures exist for the annual revenues, which consist largely of payments in kind. The Sind-Pishin railway terminates at Chaman, on the frontier, 65 miles from Kandahar. Afghanistan, the "buffer state," sustains foreign relations with the British-Indian government alone (from which government it receives a subsidy of £120,000 yearly; commercial relations with India and Russia. It is in all other respects an independent despotism, the ameer (1910, Habib Ullah Khan, son of Abdur Rahman Khan, deceased October 3, 1901), being absolute ruler. A native British agent resides at Kabul.

**ARMY.** The regular army maintained by conscription and estimated at about 50,000 men or by other critics at between 60,000 and 70,000, is armed with different types of weapons, the state possessing it is said enough rifles to arm an army of 100,000. In addition to the regular army in which there are about 9000 cavalry and a considerable number of artillery, there are local levies of horse and foot, the former being simply the retainers of various tribal chiefs, while the foot troops are organized as auxiliary to the regular infantry. There are organizations of field and mountain artillery, 360 guns being possessed by the army in addition to 30 mountain guns and howitzers which were brought into the country from the Krupp works in Essen. It is believed that arms and munitions of war in considerable amounts have been smuggled into the country through Persia. There are maintained at Kabul efficient ordnance works and arsenals under European superintendence and these are engaged in the manufacture of cannon, rifles, and ammunition. The weak point of the army is the officers, few of whom are competent to train or lead troops in serious operations.

**AFRICA.** See **ABYSSINIA**, **ALGERIA**, **EGYPT**, **LIBERIA**, **MOROCCO** and other titles of separate divisions; also **SOUTH AFRICAN UNION**, **ANTHROPOLOGY AND ETHNOLOGY**, and **EXPLORATION**.

**AFRICAN EXPLORATION.** See **EXPLORATION**.

**AFRICAN METHODIST EPISCOPAL CHURCH.** See **COLORED METHODISTS**.

**AFRICAN METHODIST EPISCOPAL UNION CHURCH.** See **COLORED METHODISTS**.

**AGASSIZ, ALEXANDER.** An American scientist, died March 29, 1910. He was born in 1835 in the town of Neuchatel, in Switzerland. His father was the famous naturalist and scientist, Jean Louis Agassiz, while his mother was Cecile Braun, sister of Alexander Braun, the eminent botanist and philosopher. He received his early education in Europe and came to the United States when he was fifteen years old. He entered Harvard College and graduated in 1855. Selecting civil engineering for a profession he entered the Lawrence Scientific School of Harvard College, where he graduated in 1857. In 1859 he went to the State of California where he was appointed an assistant on the United States Coast Survey. He utilized his ability with brush and pencil at this time in drawing specimens of the fishes caught along the boundary. He also began to select specimens for

his father and showed himself an adept in their study and preservation. In the winter of 1859-60 he went to Panama and Acapulco, collecting specimens for the Museum of Comparative Zoölogy of Harvard College. Returning to San Francisco he resumed the study and drawing of fish and then turned his attention to examining the principal mines in the interior of the State. He returned to Cambridge in 1860 and took a full course in zoölogy and geology in the Lawrence Scientific School. During the absence of his father in Brazil in 1865, Agassiz had entire charge of the Museum founded by the former. In the following year he became interested in copper mining and went to the Lake Superior region. He there became treasurer of the Calumet Mining Company and later was engaged in the development of the neighboring property of Hecla. In 1867 he became the superintendent of the combined properties. He returned to Boston in 1869 as president of the Calumet and Hecla Mining Company. These mines were extremely profitable and from them Agassiz made a large fortune. In 1869 he went abroad to study in the museums and examine the collections of Europe. On the death of his father in 1874 he became the curator of the Museum of Comparative Zoölogy. He was familiar with the vast plans of his father and continued to develop them. His work became known and admired by scientists throughout the world. In 1875 he went to the west coast of South America where he examined the copper mines of Peru and Chile and surveyed Lake Titicaca. From this expedition he brought back for the Peabody Museum of Cambridge an immense collection of Peruvian antiquities. In 1875 he was invited by Sir Wyville Thompson to assist in making up the collection of the English exploring expedition of the ship *Challenger*. He brought to Cambridge a portion of these collections and there read his celebrated report on the sea urchins. He had previously gained the Walker prize of \$1,000 from the Boston Society of Natural History for investigations of the echinoderms. In 1873 he had received the "Prix Serres," awarded only once in ten years by the Académie des Sciences of Paris. He was the first foreigner to gain this distinction. From 1876 to 1881 he spent the winters in deep sea dredging on the steamship *Blake* which had been placed at his disposal by the superintendent of the Coast Survey. He explored the deep waters of the Gulf of Mexico and of the Caribbean Sea. His ingenuity and special familiarity with hoisting and mining machinery had much to do with the success of this expedition. In 1904 he made an expedition to take deep sea soundings in the Pacific off the coast of southern and Lower California and the Central and South American states. The expenses of this expedition, which amounted to \$75,000, were paid by him after he had refused an offer from Andrew Carnegie to provide the funds. This expedition was known as "the Agassiz scientific cruise." During all these years Professor Agassiz had remained the president of the Calumet and Hecla Mining Company and from the large sums received from this property he contributed liberally to the Museum of Comparative Zoölogy and other scientific bodies. He was awarded a membership in the Order of Merit by the German Emperor in 1902 and in 1896 was made an officer of the French Legion of Honor. He was also a foreign member of the Academies of

Science of Paris, London, Vienna, Stockholm, Rome, Munich, and Copenhagen. Among his published works are the following: *Seaside Studies in Natural History* (with Mrs. Elizabeth Cabot Agassiz) (1865); *Marine Animals of Massachusetts Bay* (1871); *Explorations of Lake Titicaca; Three Cruises of the Blake; Revision of the Echini; Coral Reefs of Florida, the Bahamas, the Bermudas, the West Indies, of the Pacific, of the Maldives; Panamic Deep Sea Echini; Hawaiian Echini; Embryological Memoirs on Fishes, Worms, Echinoderms, etc.*

**AGNEW, Sir WILLIAM.** An English publisher, died October 31, 1910. He was born at Manchester in 1825 and was educated privately in that city. His father, Thomas Agnew, was a publisher with large establishments in Manchester, London, and Liverpool. William Agnew entered the firm early in life and eventually became senior partner, a post which he held for many years. The firm name was Bradbury, Agnew & Company. This firm is the proprietor and publisher of *Punch*, the English humorous weekly. Sir William was long a friend and supporter of Gladstone, and in 1880 he was elected to Parliament as a Liberal from a Lancaster division. He was re-elected five years later, but retired from politics after a defeat in 1892. He was a prominent figure in the publishing and art world. In 1887 he was chairman of the art committee of the Manchester Exposition, was a member of the Royal Commission for the Melbourne Centenary Exposition and the Paris Exposition of 1892. He printed a volume of essays, addresses and travel notes, which had a private circulation.

**AGRICULTURAL BANK.** See PHILIPPINE ISLANDS.

**AGRICULTURAL EDUCATION.** During 1910 agricultural education was actively promoted in nearly all parts of the world. This was accomplished through conventions and congresses for the discussion of ways and means, through the establishment of new institutions, and through the better financial support and larger attendance of students at existing agricultural colleges and schools. The International Scientific Congress at Buenos Ayres, the Third International Congress for Home Education at Brussels, the National Education Association at Boston, the Dry-farming Congress at Spokane, the Second National Conservation Congress at St. Paul, and numerous other scientific and educational conventions held during the year devoted much attention to the problems of educating people for life on the farm.

**FOREIGN COUNTRIES.** Among European countries France established an agricultural institute at the University of Toulouse, Ireland reported an increase in the number of itinerant instructors in agriculture and a larger attendance of students at winter and summer short courses in agriculture and domestic economy, and England opened a new \$100,000 agricultural building at Cambridge University, and established at Horsted Keynes a colonial training farm for young men wishing to go to the colonies. The conditions relating to agricultural education and research in England were improved in two ways: (1) By clearly defining the relations between the Board of Agriculture and Fisheries and the Board of Education with reference to the promotion of agricultural education, whereby the former will deal with institutions giving advanced courses in agriculture and those re-

stricted to one special phase of the subject, such as forestry, dairying, cider making, etc., the main purpose of which is to prepare competent instructors in that phase of agricultural work, and the latter will deal with all other forms of agricultural education; and (2) by the enactment of the Development and Road Improvement Funds Act of 1909, which provides, among other things, for "aiding and developing agriculture and rural industries by promoting scientific research, instruction, and experiments in the science, methods, and practice of agriculture." See AGRICULTURE. In Wales the first poultry demonstration train in Great Britain was run over the railroads for 8 days and was generally received with popular favor.

In Australia the University of Melbourne inaugurated a course in agriculture and elected a dean of the agricultural faculty. The boys in the reformatory—14 to 18 years—were given a course in viticulture and general agriculture, along with other work in general educational lines, at the Rutherglen Agricultural College. Brazil organized a bureau of agricultural inspection to make a special study of agricultural conditions, collect and disseminate useful information among farmers, promote crop introduction and production, compile agricultural statistics, make crop estimates, and inspect agricultural schools and experiment stations. (See AGRICULTURE). In the Canadian Provinces, Alberta began developing a university at Strathcona, which is to include a college of agriculture and a department of extension teaching, and will establish a system of secondary agricultural schools in connection with demonstration farms in those sections of the province not coming within the immediate scope of the college itself. The Nova Scotia Agricultural College, at Truro, reported increased attendance at regular and special courses and established a summer school for teachers. The Cuban budget for 1910 included \$112,200 for the maintenance of the six agricultural schools authorized for the several provinces by an act passed July 12, 1909.

In Italy a monthly journal, *Bollettino delle Re. Cattedre Ambulanti d'Agricoltura della Sardegna*, was published as the organ of the traveling schools of agriculture. The Madras Agricultural College, at Coimbatore (India) was dedicated and 20 students were admitted in June. The college has a farm of 450 acres. In Santo Domingo a general board of agriculture and immigration was established to have charge of all schools of agriculture, experiment stations (in contemplation), and the dissemination of agricultural literature.

UNITED STATES OFFICE OF EXPERIMENT STATIONS. In its capacity as a clearing house for agricultural education in the United States, the Office of Experiment Stations published statistical and other information concerning colleges and schools of agriculture, extension teaching and farmers' institutes, and also prepared and published a number of circulars and bulletins of a pedagogical nature. According to one of the statistical publications, the number of institutions in the United States giving instruction in agriculture increased from 545 in October, 1908, to 875 in May, 1910, a gain of 330 institutions (60 per cent) in 19 months. Its publications of an educational character included bulletins on Consolidated Rural Schools and Organization of a County System, and College Extension in

Agriculture; Farmers' Bulletins on Boys' and Girls' Agricultural Clubs, School Exercises in Plant Production, School Exercises on Corn, Forest Nurseries for Schools; a syllabus of an Illustrated Lecture on Wheat Culture; and circulars on the Free Publications of the Department of Agriculture Classified for the Use of Teachers, How to Test Seed Corn in School, Institutions in the United States Giving Instruction in Agriculture, Progress in Agricultural Education Extension, Farmers' Institutes for Young People, and Agriculture as First Year Science.

THE GRADUATE SCHOOL OF AGRICULTURE. The fourth session of the Graduate School of Agriculture was held under the auspices of the Association of American Agricultural Colleges and Experiment Stations at the Iowa State College, Ames, Iowa, during July. The enrollment was larger than at any previous session and the interest manifested by the students has never been surpassed. There were 207 students from 39 States and the District of Columbia and 6 foreign countries. Eight general lines of instruction were given and important conferences on agricultural extension, agricultural journalism, and elementary and secondary instruction in agriculture were held. The faculty numbered 57, in addition to 17 speakers at special conferences. The international relations of the school were brought out by the very interesting and valuable lectures given by Dr. E. von Tschermak, professor of plant breeding in the Royal Imperial College of Agriculture of Vienna, Austria; Dr. J. C. Ewart, professor of natural history at the University of Edinburgh, Scotland; and Prof. G. E. Day, professor of animal husbandry at the Ontario Agricultural College, Guelph, Canada.

AGRICULTURAL COLLEGES. Steps were taken by the Association of American Agricultural Colleges and Experiment Stations to celebrate in 1912 the fiftieth anniversary of the establishment of the United States Department of Agriculture and of the passage of the first Morrill Act for the endowment of State agricultural colleges, and the twenty-fifth anniversary of the passage of the Hatch Act for the establishment of State agricultural experiment stations, by holding in the city of Washington an international congress of agricultural education. A college of agriculture was opened June 14 at Los Banos, as a department of the University of the Philippines. At the Michigan Agricultural College a veterinary college was established. The agricultural colleges had a successful year, with a large attendance of students, and the reports concerning enrollment at the opening of the new year in the fall of 1910 showed some remarkable examples of growth in the number of agricultural students. Arkansas reported an increase of 13 per cent., Kentucky 50 per cent., Massachusetts 25 per cent., North Dakota 25 per cent., Minnesota over 42 per cent., and Wisconsin 60 per cent. At the University of Illinois there were 100 more agricultural freshmen than last year, at the Ohio State University more than ever before (over 300 freshmen), and at Cornell the agricultural students had increased from 932 to 1254.

There was a notable increase in the number of institutions conducting teacher-training courses in agriculture. The total number of such institutions was 214, including 30 agricultural colleges, 156 State and county normal schools and 28 negro schools. Nineteen of the agricultural

colleges announced regular courses for teachers and 24 of them conducted summer schools for teachers of agriculture. In Michigan the teachers of agriculture in high schools organized the Society for the Promotion of Agricultural Education in the Public Schools.

**EDUCATIONAL EXTENSION WORK IN AGRICULTURE.** Farmers' institutes were maintained in every State, with responsible directors in charge and a corps of teachers aggregating over 1000 specialists to give instruction. There was appropriated for carrying on the work about \$432,000, an increase of \$86,000 over the appropriation of the year before. There were held 5651 regular institute meetings, composed of 16,586 sessions of one-half day each, with a total attendance of 2,395,908. In addition, 99 movable schools of agriculture were held last year, with an attendance of 65,977. There were also many field demonstrations, and 28 agricultural demonstration trains were run over many thousands of miles in 18 different States, which were visited by about 190,000 people. Fifteen States held 444 institutes for women, with an attendance of 4850; and there were 160 sessions of institutes held for young people.

**SECONDARY AND ELEMENTARY SCHOOLS.** In 1910 there were 630 secondary institutions—agricultural high schools and public and private high schools and academies—with students in agriculture. The most notable advance in secondary agricultural education was in the number of departments of agricultural instruction established in public high schools with the aid of State appropriations. Five such departments were established in Alabama high schools, 8 in Louisiana, 10 in Minnesota, 5 in Mississippi, and 10 in Virginia. In Maryland and New York new high school laws providing for State aid to encourage the establishment of courses in agricultural home economics and manual training in public high schools were passed.

The boys' and girls' agricultural club movement made rapid progress. In the 11 Southern States in which boys' corn clubs were conducted in coöperation with the United States Department of Agriculture, over 46,000 boys grew one acre of corn each, and to the 11 State winners a free trip was given to Washington. The winner of the sweepstakes prize grew on one acre 228 bushels and 3 pecks of corn at a cost of 43 cents a bushel. Similar contests in growing farm crops or in cooking and sewing were also conducted in nearly all of the States of the North and West. In Kansas an organization known as Rural Life Boy Scouts was started.

The first State fair agricultural school encampments were held in Illinois and Oklahoma. Large tents were erected and in them the boys (150 in Oklahoma) slept, ate, and listened to lectures for several days. Educational farm encampments were held in a number of States.

**TEXT-BOOKS AND MANUALS.** A large number of text-books and manuals suitable for use in agricultural courses in colleges and technical agricultural high schools were published in 1909 and 1910. Among the more strictly agricultural of these text-books are the following: W. M. Hays, *Farm Development* (1910); T. L. Lyon and E. O. Fippin, *The Principles of Soil Management* (1909); H. G. Lamb, *Farm Bookkeeping* (1909); P. McConnell, *Live Stock: Breeding and Management*; W. Macdonald, *Dry Farming: Its Principles and Practice* (1909); J. McLennan, *A Manual of Prac-*

*tical Farming* (1910); T. Shaw, *The Management and Feeding of Cattle* (1909); V. M. Shoesmith, *The Study of Corn* (1910); C. Werner, *A Textbook on Tobacco* (1909); A. R. Whitson and H. L. Walster, *Notes on Soils* (1909); J. E. Wing, *Alfalfa in America* (1909).

There were also numerous books relating to poultry husbandry, of which the following are the more important: E. Kellerstrass, *The Kellerstrass Way of Raising Poultry* (1909); H. H. Lehman, *Lehman's Poultry Doctor*, (1910); F. R. Lillie, *The Development of the Chick* (1908); A. T. Johnson, *Chickens and How to Raise Them* (1909); H. A. Nourse, *et al., Turkeys, Ducks, and Geese* (1909); M. Purvis, *Poultry Breeding* (1910); C. S. Valentine, *How to Keep Hens for Profit* (1910).

Among the books on horticulture and forestry the following are worthy of mention: A. C. Apgar, *Ornamental Shrubs of the United States*, (1910); B. E. Fernow, *The Care of Trees in Lawn, Street and Park, with a List of Trees and Shrubs for Decorative Uses* (1910); B. E. Fernow, *History of Forestry* (1909); A. Fron, *Silviculture* (1909); M. G. Kains, *Making Horticulture Pay* (1909); T. V. Munson, *Foundations of American Grape Culture* (1909); Julia E. Rogers, *Trees Every Child Should Know* (1909); W. S. Rogers, *Garden Planning* (London and Leipzig, 1910); A. C. Van Velsor, *Fig Culture* (1909).

In addition to these there were the following, closely related to agriculture: I. W. Brewer, *Rural Hygiene* (1909); C. W. Burkett, *The Farmer's Veterinarian* (1909); W. S. Hall, *Nutrition and Dietetics* (1910); F. Löhnis, *Handbook of Agricultural Bacteriology* (*Handbuch der landwirtschaftlichen Bakteriologie*) (Berlin, 1910); H. L. Russell and E. G. Hastings, *Agricultural Bacteriology* (1909).

In the field of secondary and elementary instruction in agriculture there were two books discussing pedagogical problems: David Sneed, *The Problem of Vocational Education*, (1910); and H. W. Focht, *The American Rural School: Its Characteristics and Its Future* (1910). There was also a large number of elementary text-books of agriculture, nature study, and gardening, of which the following are the more important: D. O. Barto, *Manual of Agriculture* (1910); Lottie E. Cray, *Field Zoölogy* (1910); P. Elford and S. Heaton, *Practical School Gardening* (1909); Lillian C. Flint, *Small Gardens for Small Gardeners* (1910); F. M. Fultz, *The Fly-aways and Other Seed Travelers* (1909); M. Louise Greene, *Among School Gardens* (1910); Myrta M. Higgins, *Little Gardens for Boys and Girls* (1910); Sarah W. Landes, *Elementary Domestic Science* (1909); H. G. Parsons, *Children's Gardens for Pleasure, Health, and Education* (1910); S. C. Schmucker, *The Study of Nature* (1909); H. E. Stockbridge, *Land Teaching* (1910); A. A. Upham, *An Introduction to Agriculture* (1910); C. M. Weed, *Farm Friends and Farm Foes* (1910); A. D. and E. W. Wilson, *Agriculture for Young Folks* (1910).

**AGRICULTURAL EXPERIMENT STATIONS.** EXTENSION OF THE WORK. Public interest in broadening the work and influence of the agricultural experiment stations is still growing. This is shown by the attention given to agricultural experimentation in the public

press and popular magazines, by the efforts railroads are making to disseminate the results obtained by the stations, by the establishment of local experimental agencies, as well as by the larger State appropriations for station buildings, equipment and maintenance. In California a substation for irrigation has been established in the Imperial Valley. In Louisiana a special station for rice culture is now in operation. In Minnesota 12 demonstration farms of 80 acres each have been established and 7 more are planned. The State Federation of Commercial Clubs is actively coöperating in this enterprise. Nine additional demonstration farms have been opened in North Dakota and nine substations have been located in Texas. Substations or experimental farms have also been established recently in Nebraska, Nevada, Tennessee, Maine and Oregon. The establishment of fellowships by business firms for the investigation of special problems is another new evidence of the interest in agricultural investigations. An example of this is the fellowship at Cornell University Station for investigating the value of commercial lime-sulphur mixtures as fungicides. In 1909 the stations employed 1242 persons in the work of administration and inquiry. They published 517 annual reports, bulletins and circulars, which were supplied to over 912,000 addresses on the regular mailing lists. The volume of station correspondence with farmers is enormous. The value of the additions to station equipment in 1909 aggregated \$744,561. Substantial buildings to be used exclusively by the stations have been erected in Florida, Indiana, Porto Rico and Texas.

**FEDERAL AND STATE STATIONS.** Agricultural experiment stations maintained in whole or in part by Federal funds now exist in every State and Territory, including Alaska, Hawaii, Porto Rico and Guam. The total amount expended for stations maintained under the acts of 1887 and 1906 during the fiscal year ending June 30, 1909, was \$3,053,446.90, of which \$1,248,000 was received from the national government. In addition to this, the Office of Experiment Stations had an appropriation of \$314,620 for the past fiscal year, including \$26,000 each for the Alaska, Hawaii and Porto Rico experiment stations, \$5000 for the Guam Experiment Station, \$7000 for nutrition investigations, \$150,000 for irrigation and drainage investigations, and \$10,000 for farmers' institutes and agricultural schools. In Alabama, Connecticut, Hawaii, Louisiana, Missouri, New Jersey, New York, North Carolina and Virginia separate stations are maintained wholly or in part by State funds, and in a number of States substations are maintained. Excluding substations, the total number of stations in the United States is 62, of which 55 receive Federal funds.

**EFFECTS OF THE ADAMS ACT.** During the present fiscal year the Federal appropriation under the Adams Act reaches its maximum of \$15,000 to each State and Territory, or \$720,000. The same amount is granted to the stations under the Hatch Act, making a total Federal appropriation of \$1,440,000. In a report to the House Committee on Agriculture, the director of the Office of Experiment Stations makes the following statement regarding the effect of the Adams Act:

"There is no doubt that the Adams Act has raised the general level of the experimental

work of the American stations; it has also led the States to greatly extend their more practical operations. Agricultural science will grow chiefly through numerous small contributions to knowledge, and of these a relatively large number have been gained by our stations during the past few years. Some fundamental and far-reaching results have also already been obtained with the aid of the Adams fund. These may be illustrated by the following: The Maine Station has shown high egg production is a family quality and inherited only within families having the ability to transmit it. On this basis a satisfactory method of selection has been worked out. The same thing has been found true of corn. High quality in some respect in the individual plant may not be transmitted, but such transmission occurs within certain families. A new standard for feeding dairy cows has been worked out by Professor Haecker of Minnesota, which is more practical and economical under American conditions than the German standards. It has been definitely shown by Dr. Lipman of New Jersey that such crops as corn, oats, etc., profit by the ability of legumes to assimilate the free nitrogen of the air. How this interchange of material takes place is being studied."

**FACILITIES FOR RECORD AND REVIEW.** The Association of American Agricultural Colleges and Experiment Stations is continuing its efforts to secure the establishment of a journal of agricultural research in which the original reports of the scientific work of the stations may be published, and the Secretary of Agriculture has recommended this in his estimates for the appropriations for his Department for the ensuing fiscal year. The Office of Experiment Stations has enlarged its review of the world's literature of agricultural science in the *Experiment Station Record*. Two volumes of this journal are now issued annually, those for the past year including over 7000 abstracts. The 22 volumes thus far issued contain references to 78,698 articles, besides editorials, special articles and notes. The card index of the literature of the American stations issued by this office now contains 31,000 cards and is being widely used by students. Copies of this index are deposited in all the libraries of the agricultural colleges, experiment stations and State departments of agriculture. The office has become one of the large investigating bureaus of the Department of Agriculture, its annual income for this purpose aggregating over \$250,000. Its investigations are conducted in five main lines: (1) maintenance of experiment stations in Alaska, Hawaii, Porto Rico and Guam, (2) agricultural education (q. v.), (3) food and nutrition (q. v.), (4) irrigation (q. v.), and (5) Drainage. See also AGRICULTURAL EDUCATION.

**RECENT EXPERIMENTS.** In Alaska cereal breeding, testing of varieties of grain, and methods of culture are the important lines of work at the Rampart and Fairbanks Stations. During the past two seasons an unusually large number of varieties of barley, oats, wheat and rye have been matured at Rampart (65 deg. 30 min. N. Lat.). By cross-fertilization a number of new varieties of barley and oats have been developed. At Fairbanks grain, hay and potatoes are being grown on 65 acres and 50 acres are in meadow. The first self-binding reaper in Alaska was used at the Fairbanks Sta-

tion the past summer. Of the large number of hybrid strawberries at the Sitka Station at least a score have proved thoroughly adapted to the coast region of Alaska. The berries are of large size, good substance, and excellent quality. The station herd at Kodiak now contains over 60 Galloway cattle which have wintered on native hay and silage. Experiments with 80 Cotswold and Merino grade sheep and two Lincoln rams have been begun. In Hawaii great interest has been aroused by the station's success in growing Sea Island and Caravonica cotton. These varieties grown perennially and fertilized with phosphates yield two bales and more per acre on land not used for sugar cane. Cuttings can be used for propagation and the pruning so timed as to bring a crop when sugar plantation work is slack. Hundreds of acres have been planted with cotton, and the first shipment of this product from Hawaii in fifty years was recently made to Boston. Rice experiments have shown that ammonium sulphate is cheaper than nitrate of soda and doubles yield if the fertilizer is applied at planting or first flooding instead of at second flooding as in oriental practice. Experiments have shown that clean cultivation increases the flow of sap from rubber trees. The station has killed the weeds in rubber plantations by spraying with arsenite of soda, at an expense of \$1.25 per acre.

In Porto Rico the station has shown that excessive growth of bacteria in certain soils prevents good crops, and that deep plowing and use of chemicals will remedy this; also that chlorosis of pineapples is due to excessive carbonate of lime in the soil. Windbreaks have been shown to be essential to citrus fruit culture, chiefly because they regulate moisture and enable beneficial fungi to keep down scale insects. Coffee experiments are proceeding on 90 acres near Mayaguez and 20 acres north of Ponce. The famous high-priced varieties, such as Blue Mountain of Jamaica and Padang of Java, have done well. A station for cane growing and the sugar industry has been established by the Porto Rican planters during the year.

In Guam the station has 20 acres out of 27 in the recently purchased tract under cultivation. Emphasis is laid on experiments with forage crops, e. g., sorghum, grasses, soy beans, velvet beans, cowpeas, preparatory to introduction of livestock. Small cultivators, worth about \$5 apiece have been introduced. With these cultivators one man can do as much work as ten can with the old-style implements used by the natives.

The Rothamsted Station in England has reported the important work of Russell and Hutchinson on the effect of partial sterilization by heat or volatile antiseptics on the productiveness of soils. Such treatment reduces the number of protozoa which live on soil bacteria and thus permits the more abundant development of ammonia-producing bacteria.

In Canada an appropriation of \$185,000 has been made for the maintenance of the Dominion's agricultural experiment stations, which also includes \$45,000 for additional experimental farms.

In Australia experiments in dry farming on the American plan are being undertaken. The South Australian government has purchased 1600 acres of land for the establishment of a government dairy farm.

A tobacco experiment station has been established at Danli, Honduras.

The Jewish Agricultural Experiment Station, endowed with funds contributed by American Jews, has been located on 125 acres of land about 7 miles from Haifa in Palestine. It is under the directorship of Aaron Aaronsohn and is especially intended to promote the improvement of agricultural practice among the Jewish people of the region. Studies will also be made of the wild prototypes of cereals.

Plans have been completed for the experiment station at Oaxaca, Mexico. This will be located on a plantation of several hundred acres in the sugar region. Extensive orchards, of peaches, olives, oranges, etc., will be planted, and the equipment will include an irrigation system and experimental sugar mill. The buildings will cost over \$100,000. Special attention will be given to the introduction, acclimatization and distribution of plants and to studies in sugar production and manufacture.

The experiment stations in Austria have organized into an association and have designated an official organ for the association.

#### AGRICULTURAL LABOR PROBLEM. See AGRICULTURE.

**AGRICULTURE. PRODUCTION IN 1910.** Agricultural production in the United States during 1910 reached the highest value ever attained by any country—a total of \$8,926,000,000. This is an increase of \$305,000,000 over the previous year. There has been an uninterrupted increase in value of farm products since the census year of 1899, the figures for 1910 being 89.2 per cent. higher than for that year. This is in spite of the drought which prevailed in 1910 in many sections, especially the West, indicating the wide extent of the country and its varied climate, soil, and crops. Illinois led all the States in total value of crop production, with over \$290,000,000, followed by Iowa with \$234,000,000. The values for some of the other leading States, based on their principal crops, were Missouri \$188,000,000, Texas \$134,000,000, Ohio \$182,540,000, Minnesota \$175,000,000, Indiana \$174,000,000, Kansas \$168,000,000, Pennsylvania \$161,000,000, and Nebraska \$147,628,000. The crops of corn, oats, total of all cereals, and tobacco were the largest ever produced, but owing to the prices prevailing cotton was the only crop that reached its highest value. The crops of rice, hay, beet sugar, and total sugar were next to the highest in quantity, and wheat, oats, barley, tobacco, flaxseed, and sugar were next to the highest in value for any year. The corn crop of 3,125,713,000 bushels was worth to the producers \$1,523,968,000. This is not a board of trade value, but the price at point of delivery by the farmer. It lacks but \$3,000,000 of equaling the total value of the imports of merchandise during the fiscal year 1910. The world's production of precious metals, which has been regarded as such a factor in the present high prices, equals for the year only one-third the value of the corn crop. Judged by value, corn was a far more important crop than cotton, which is next to it. Including the value of the seed, the latter is valued at about \$900,000,000. The hay crop stands third in value, \$747,769,000; and wheat, which has usually exceeded cotton until very recent years, comes fourth with a farm value of \$621,443,000. The yields in 1910 were above the five-year averages in the case of corn, oats, rice, buckwheat, sugar, potatoes,

tobacco, and wool. A comparison of statistics for several decades clearly shows that the yields per acre of the leading crops are now increasing, and the percentage of this increase in many States is greater than the percentage of normal increase in population. The percentage of the total area of the United States devoted to certain crops in the decade 1900-1909 was as follows: Corn 5 per cent., wheat 2.5 per cent., oats 1.6 per cent., potatoes 0.2 per cent., and cotton 1.5 per cent. The figures for corn, wheat, and oats are considerably larger than for the decade 1880-1889.

The final estimates of the Crop Reporting Board of the Bureau of Statistics, United States Department of Agriculture, based on the reports of the correspondents and agents of the Bureau, indicate the harvested acreage, production, and value of important farm crops of the United States, in 1910 and 1909, to have been as follows:

## CROP AREAS, YIELDS, AND VALUES, 1910.

Crop	Acreage	Production	Farm value December 1	
			Per bushel	Total
	<i>Acres</i>	<i>Bushels a</i>	<i>Cents</i>	<i>Dollars</i>
Corn, 1910 .....	114,002,000	3,125,713,000	48.8	1,523,968,000
1909 .....	108,771,000	2,772,376,000	59.6	1,652,822,000
Winter wheat, 1910 .....	29,427,000	464,044,000	89.1	413,575,000
1909 .....	28,330,000	446,366,000	102.9	459,154,000
Spring wheat, 1910 .....	19,778,000	231,399,000	89.8	207,868,000
1909 .....	18,893,000	290,823,000	93.1	270,892,000
All wheat, 1910 .....	49,205,000	695,443,000	89.4	621,443,000
1909 .....	46,723,000	737,189,000	99.0	730,046,000
Oats, 1910 .....	33,288,000	1,126,765,000	34.1	384,716,000
1909 .....	33,894,000	1,007,353,000	40.5	408,174,000
Barley, 1910 .....	7,257,000	162,227,000	57.8	93,785,000
1909 .....	7,011,000	170,284,000	55.2	93,971,000
Rye, 1910 .....	2,028,000	83,039,000	72.2	23,840,000
1909 .....	2,006,000	32,239,000	73.9	23,809,000
Buckwheat, 1910 .....	826,000	17,239,000	65.7	11,321,000
1909 .....	834,000	17,438,000	69.9	12,188,000
Flaxseed, 1910 .....	2,916,000	14,116,000	230.6	32,654,000
1909 .....	2,742,000	25,866,000	152.6	39,466,000
Rice, 1910 .....	722,800	b 24,510,000	67.8	16,624,000
1909 .....	720,225	24,368,000	79.4	19,341,000
Potatoes, 1910 .....	3,591,000	338,811,000	55.5	187,985,000
1909 .....	3,525,000	376,537,000	54.9	206,545,000
Hay, 1910 .....	45,691,000	c 60,978,000	d\$12.26	747,769,000
1909 .....	45,744,000	c 64,938,000	d\$10.62	689,345,000
Tobacco, 1910 .....	1,233,800	e 984,349,000	f 9.3	91,459,000
1909 .....	1,180,000	e 949,357,000	f 10.1	95,719,000

a Bushels of weight. b Equivalent to 5,930,000 bags of 186 pounds, average weight. c Tons. d Per ton. e Pounds. f Per pound.

The total value of crops above specified on December 1, 1910, was \$3,735,464,000, against \$3,971,426,000 on December 1, 1909. The average of prices was about 8.5 per cent. lower on December 1, 1910, than on December 1, 1909.

**PRICES.** The year was one of high prices for meat and animals, poultry and eggs, and for butter and milk. The gain in value of animal products amounted to \$424,000,000. The dry season on the ranges of the West led to the marketing of cattle and sheep in enormous numbers, from Texas to Montana. The slump in wholesale prices in the late fall was not followed by a corresponding reduction to consumers, which led the latter to place the blame on the retailers. The South is awakening to its possibilities as a grazing country. The successful fight against the cattle tick is offering encouragement to cattle raising for beef on the vast upland tracts. Within the past four years the tick has been exterminated from 129,611 square miles. The northern edge of the quarantine line is being pushed steadily south, and the handicap to cattle raising thus removed.

**FOREIGN TRADE.** The balance of trade in agricultural products in favor of the United States

fell from over \$488,000,000 in 1908 to \$274,210,152 in 1909, and to \$198,090,925 in 1910. The prices of farm products were so high as to prevent the free export movement which existed before. The value of the agricultural exports in 1910 was \$871,107,067, the principal items in point of value being cotton, packing-house products, grain and grain products, tobacco, oil and oil-cake meal, fruits, and live animals, in the order named. There was a decrease in all these except cotton, tobacco, and fruits. The value of imports of farm products has constantly increased year by year, reaching the enormous sum of \$687,486,188 in 1910, an amount much above that for 1909. Prominent among these imports were packing-house products (mostly hides and skins) \$130,140,313, sugar and molasses \$107,716,367, coffee \$69,194,333, silk \$67,119,108, wool \$51,220,844, vegetable fibers \$48,234,977, tobacco \$27,756,133, and fruits \$24,177,160. The exports of forest products

amounted to \$85,054,606, the highest for any year except 1907 and 1908, but the imports, consisting mostly of India rubber, wood pulp, pulp wood, and woods not grown in the United States, were more than double this amount—\$179,610,886, the highest point yet reached.

**PRODUCTION IN FOREIGN COUNTRIES—CEREALS AND VEGETABLES.** Despite unfavorable weather conditions in some parts of Europe the European wheat crop is thought to be nearly or quite equal to the unprecedented crops of the previous season. This is largely due to the Russian crop, estimated at 772,600,000 bushels, or only 10,000,000 bushels less than the high record crop of 1909. Preliminary figures for Victoria and South Australia indicate yields varying to no important extent from the high records of last season, and the promise is for from fair to good results in New South Wales. The total wheat crop for Australia is placed at 93,263,000 bushels. This indicates an export surplus equal to that of 1909, which amounted to about 52,000,000 bushels. The wheat crop of Argentina, the harvest of which is not completed until the middle of February, is estimated at fully 150,000,000 bushels. Late trade reports indicate

losses from drought in the south, but the area affected is at present indeterminable. The summer in Great Britain was deficient in sunshine, with low temperatures and excessive rain. The per acre yields of cereals were high, as usual, but not up to those of 1909. Wheat yielded 58,300,000 Winchester bushels, barley 65,000,000 bushels, oats 127,778,000 bushels, and potatoes 129,856,000 bushels. The hay crop was about 9,560,000 long tons. The season was unfavorable in France, the summer being cold and wet. Potatoes were only a half crop and sugar beets were reduced in both yield and quality. The potato crop is reported as short in all parts of Belgium, being a complete failure in some localities; and in Germany the crop was reduced, having suffered from disease, especially in the southern part of the empire. The deficient wheat crop of Italy indicates the import requirements at about 75,000,000 bushels, as compared with 35,000,000 bushels last year. The rice crop of that country is placed at 965,615,000 pounds against 1,093,000,000 pounds in 1909; and corn at 97,750,000 bushels, against 94,821,000 bushels the previous year.

The production of corn in Russia was 76,000,000 bushels, of barley 440,000,000 bushels, and of oats 1,100,000,000 bushels. The corn crop of Hungary is estimated at 195,000,000 bushels, an increase of more than 30,000,000 bushels over 1909, and the potato crop at 170,000,000 bushels, or nearly 14,000,000 bushels less than in 1909, but still 15,000,000 bushels above the average. In Roumania the corn crop is placed at 106,000,000 bushels, wheat at 106,000,000 bushels, barley at 29,358,000 bushels, a large increase over 1909, oats at 29,647,000 bushels, and rye at 7,885,000 bushels. The farming interests of Chile have suffered greatly from want of rain. The indications of less than a half crop of wheat, barley, or corn on unirrigated land are reported, which means a wheat supply from two to three million bushels less than the home demand in place of an export of 4,000,000 bushels. The drought also seriously affected the stock-raising interests, which were not prepared to feed stock. It will necessitate additional imports of beef cattle from Argentina, which amounted to 93,519 head in 1909.

**SHEEP RAISING:** The statistical year for the wool trade of Australasia, which closed July 1, 1910, was the most prosperous year in the history of the wool trade. This was due to abundant rainfall and the high prices of wool. The number of sheep in Australia and New Zealand increased during the year, the total amounting to 115,525,581 head, approaching the record year of 1891. These two countries shipped during the year 2,483,643 bales of wool, valued at \$161,004,490, a large increase in amount and value as compared with the record clip of the previous season. The progressive passing over of vast estates in Russia, upon which large herds of sheep were formerly kept, into the hands of peasants has resulted in the steady reduction of the flocks in European Russia. These estates were cut up into small holdings. This factor and the increasing rate of land rent have resulted in a considerable falling off in the wool production of that country.

**AGRICULTURE IN URUGUAY.** Statistics recently published on the agricultural and livestock census of Uruguay for 1908 show 43,061 farms or ranches, covering an area of 42,302,021 acres. Less than 2,000,000 acres of this land is cultivated; forests occupy over a million acres and

the balance is given up to pasture. This immense pasturage was divided into 60,485 fields, on which 1,104,903 cattle were wintered the year preceding the census. There were 109,449 persons employed in the agricultural and livestock industry.

**THE TEA TRADE.** The London *Times*, in a review of the tea trade for 1909-10, gives the world's production at about 1,200,000,000 pounds, distributed as follows: China 600,000,000, India 262,000,000, Ceylon 191,000,000, Natal 2,000,000, Japan 63,000,000, Java, Formosa, and all other countries 82,000,000 pounds. About half of that produced in China and a third of that grown in Japan is consumed locally. On account of the growing popularity of Indian and Ceylon teas, Japan has arranged a ten-years' campaign for the United States, at an annual cost of \$80,000, toward which the government is expected to give a subsidy of \$50,000. Tea drinking is steadily increasing in South American countries.

**THE INTERNATIONAL AGRICULTURAL INSTITUTE** at Rome has been placed on a working basis, and is now issuing a monthly bulletin giving such information as is available as to the area and condition of crops in different countries of the world. An estimate for cereals was issued near the close of the year. A bulletin dealing with agricultural coöperation, insurance, and credit for several countries has been published. Count Faina has resigned from the presidency of the Institute and has been succeeded by the Marquis Cappelli.

**TOXICITY OF COTTON-SEED MEAL.** An important discovery of the year relates to the poisonous property of cotton-seed meal when fed to livestock, especially pigs and calves. The United States Department of Agriculture has announced the finding of an inorganic body, a salt of pyrophosphoric acid, to which the toxicity seems to be due. Phosphoric acid has been known to exist in the meal in considerable quantities, but its relation to toxicity has not hitherto been shown. By heating the meal, as is done in extracting the oil at the mills, a part of the phosphoric acid is changed to pyrophosphoric acid, known to have poisonous properties. Different kinds of meal are found to vary in toxicity, which agrees with practical experience. While the seed from Upland cotton was quite generally poisonous to stock, that from certain Sea Island cotton was practically harmless, although heating the latter resulted in the formation of an appreciable amount of the poisonous principle.

**LEGISLATION IN GREAT BRITAIN.** A far-reaching measure, known as the Development and Road Improvement Funds Act, was passed by the British Parliament at the close of 1909. While the purpose of Part I of the act is "to promote the economic development of the United Kingdom," much prominence is given to aiding and developing agriculture and rural industries, by encouraging research, instruction, and experiment, the organizing of co-operative enterprises, and the extension of the provision of small holdings. There is also provision for the improvement of rural transportation, development of forestry through teaching and experimentation and through afforestation of lands found suitable, the reclamation and drainage of lands, and the development and improvement of fisheries. A consolidated fund of £500,000 is provided for the fiscal year ending March 31, 1911, and for each of the four succeeding years, which the Board of Development Commissioners may loan or grant to institutions,

organizations, or individuals for the purposes of the act. It has been announced that horse breeding will be one of the enterprises subsidized. The second part of the act relates to road building, providing for a road board which is authorized to borrow up to £200,000 a year, to be employed in grants or loans.

**CANADIAN FARMERS AND THE TARIFF.** In Canada a large deputation of farmers, nearly a thousand in number, representing provinces from Prince Edward Island to British Columbia, gathered in Ottawa December 10 to lay before the Prime Minister the request for tariff reform and other measures. The movement started with the grain growers' organizations of the prairie provinces, who were joined by the Council of Agriculture, a Dominion-wide organization. The deputation is without precedent in Canadian or British political history. Among the questions presented were lower duties in the tariff and reciprocity with the United States, government ownership and operation of terminal elevators on Lake Superior, in connection with which frauds have been perpetrated on a large scale, and the construction by the government of a railway giving to the prairie provinces an outlet for their grain by way of Hudson Bay. On the last two points the outcome was favorable, but on the tariff the Premier's statement gave little encouragement to the deputation.

**LEGISLATION IN BRAZIL.** A bureau of agricultural inspection has been organized in Brazil, with a corps of 15 inspectors of agriculture, to report on crop conditions, soils, water supply, irrigation possibilities, and every subject pertaining to agriculture, as well as to collect and disseminate useful information among farmers, promote the introduction of new crops, etc. An expenditure of \$300,000 in the northern states has been authorized for the introduction of irrigation and dry farming methods necessitated by the drought which has prevailed. A new law for irrigation and dry farming in Brazil makes provision for opening up remote regions by rail and highways, irrigation reservoirs and artificial wells, dikes along rivers which overflow in the rainy season, the drainage of lowlands along the coast, and the general adaptation of land suitable to cultivation in every way possible. The various measures are to be carried out either by the federal government on its own initiative or with the aid and coöperation of the state governments.

**LEGISLATION IN MEXICO.** In accordance with a law passed at the close of 1909 the federal agricultural services in Mexico have been reorganized. The new general bureau of agriculture, divided into five departments, has entered upon its duties, and national chambers of agriculture have been established in 11 of the more important agricultural states of the Republic. The Mexican Government has withdrawn its public lands from sale. In the past large tracts of these lands have been secured by companies for colonizing purposes, but the opportunity for this is now suspended.

**THE TURKISH GOVERNMENT** has appointed a director of agriculture for Bagdad, who has advised the establishment of an agricultural bank and an agricultural school, and is urging the richer owners of land to adopt modern ploughs, mechanical reapers, and threshing machines. This it is thought will make a demand for agricultural machinery in Asia Minor. To promote the growing of corn in the southern part of Rus-

sia, that country is reported to have removed the duty on all utensils and machinery required in the cultivation of the crop.

**LEGISLATION IN THE UNITED STATES.** A Federal law relating to the manufacture, sale, and interstate transportation of adulterated or misbranded insecticides and fungicides was passed in the United States during the year and went into effect January 1, 1911. The execution of the inspection rests with the Bureau of Chemistry of the United States Department of Agriculture. In the interest of horse breeding in the United States, stallion registration laws have now been passed and are in operation in 15 States. The object of these laws is to exclude unsound or diseased animals from service, and guard against fraud in the case of animals claimed to be pure bred. An important result has been a rapid elimination of unfit animals and greater attention to the breeding and registry of stallions offered for public service. An organization of officials charged with the administration of these laws was formed in the summer of 1910, with a view to securing unification of the State laws.

**COST OF PRODUCTION.** One of the most significant features of the year was the quickened public interest in agricultural production and distribution growing out of the cost of living. This led to a more searching inquiry as to the factors which influence the cost of production and distribution, and the relationship between what the producer receives and what the consumer pays for products which are not manufactured, but are merely handled. This inquiry has developed the lack of systematic economic studies in relation to agriculture upon which to base reliable and broad-minded deductions. The subject of agricultural economics has only recently begun to receive attention in the United States, but the present situation strongly emphasizes the need and the utility of it from the standpoint of the producer, the consumer, the intervening agencies, and the lawmakers. The farmer's relation to the increased cost of living has been given attention in the United States and in Europe. In Europe statistics are presented to show that, in some sections at least, the farmer is not reaping the benefit of high prices, since the cost of raising meat, dairy and other farm products has steadily increased. It is shown that as a matter of fact the farmer now gets a less return for his labor than a few years ago, and that the industry is becoming less profitable year by year. This results from the increased cost of labor and other supplies which the farmer has to purchase. In the United States investigations by the Secretary of Agriculture of the prices received by the farmer and those paid by the consumer lead him to conclude that "the consumer has no well-grounded complaint against the farmer for the prices that he pays." He maintains, however, that the farmer has benefited more than others from the changed conditions in values, for the ten leading agricultural crops have increased in the past decade 72.7 per cent. in value at the farm, whereas 85 articles commonly used by the farmer show an average increase of 12.1 per cent. The grand average increase in purchasing power per acre of all crops has been 54 per cent. But the greater part of the farmer's prosperity rests upon a higher yield per acre; farmers and farming have become more efficient.

A special committee of the United States Sen-

ate investigated wages and the prices of commodities in the spring of 1910. It reported that the advance in prices of farm and food products, although world-wide, had been somewhat more rapid in the United States than in Europe, with the possible exception of Russia. Canada also showed a rapid advance. Among the causes assigned were an increased cost of production owing to higher land values and higher wages, increased demand for products, shifting of population from food-producing to food-consuming occupations and locations, reduced fertility of land, increased banking facilities in agricultural localities which enable crops to be held for more favorable market, holding products in cold storage, cost of distribution, and organization of producers and of dealers. In the past decade the wages of farm labor have increased on an average about 60 per cent., and the cost of farm land has practically doubled. Nearly all agricultural implements and supplies have advanced in price except binder twine. The report says: "Witnesses claim that farming operations were conducted at a loss or at best with only a very slight margin of profit for several years, and that only during the past two or three years have farmers been able to secure a fair return on their labor and investment." A comparison of wholesale prices in 1900 and 1910 showed that cereals, corn, cotton, flaxseed, hay, hops, hogs, and steers had all advanced, from 34 to 153 per cent., the advance in hogs being about 110 per cent. The percentage increase in the price of farm products in the decade was twice as great as in any other group of commodities, food products coming next. Considering the production of staple crops and the decline in exports, it is shown that the supply available for home use has increased and that this has been attended by an increased domestic consumption.

A committee on the cost of living, appointed in February, 1910, by the Massachusetts Legislature, rendered a voluminous and comprehensive report in which prominence is given to the restriction of agricultural production and the enhancing of cost through the drain of population from the land. The scarcity and increased wages of farm labor, with demand for shorter working hours, is cited as a potent factor in increasing the cost of agricultural products. Another factor mentioned is the uneconomic methods of production and distribution, especially the latter. The commission says: "Were a clearing house, for information only, organized—an exchange to which all carload shipments of produce were promptly reported—and a central committee appointed to issue orders for consignments from the various sources of supply after going over the receipts for the day, crowded markets would be greatly reduced in number. With a shippers' exchange on the one hand, co-operating with a commission men's exchange on the other, most of the present waste would be eliminated."

Studies of the incomes of 178 farms of various kinds in New York State, published by the experiment station of Cornell University, show that, allowing interest at 5 per cent. and deducting labor of members of the farmer's family other than himself, the average return for the year's work was \$981, in addition to the use of a house and such products as the farms furnished. The return on the investment was 7.9 per cent. for 60 general farms, 8.7 per cent. for 67 dairy farms, 9.7 per cent. for 6 truck farms,

13.7 per cent. for 14 potato farms, and 19.8 per cent. for 31 fruit farms. Comparisons of the most successful and least successful farms of various types showed about double the income for the most successful ones, whereas the expense for the two classes was about the same. In other words, success was measured by the farmer's efficiency in production. The cost of agricultural production has been determined by the Minnesota Experiment Station from statistics gathered over a period of six years from over 80 farms. The average cost of growing an acre of barley was \$8.21, of corn \$10.26, of oats \$8.86, of wheat \$7.25, and of potatoes (machine production, using fertilizer) \$37.72. The cost of maintaining a milch cow was \$40.97 a year exclusive of shelter, and of feeding a farm work horse \$51.39.

The United States Tariff Board is making an effort to determine the cost of production of leading farm products, as a basis for a tariff representing the difference between cost of production at home and abroad. In the case of wool, for example, it is proposed to substitute real facts for guesswork and *ex-parte* statements. Considerable difficulty is experienced in gathering such data, as few studies of the kind have been made and farmers rarely keep books with their farm output.

**COUNTRY LIFE; SMALL HOLDINGS; AGRICULTURAL LABOR.** There has been much public discussion of the necessity for the reorganization of agriculture and rural life, in which coöperation is to dominate as a means of enabling the farmer to secure a reasonable profit and a larger net income for his industry. While education will help to solve some of the economic problems of farming, coöperation is looked upon as the most helpful agency in bringing this about. An important conference on agriculture and country living, lasting three days, was held at Albany, N. Y., in January, 1910. The methods and agencies for the advancement of agriculture were considered, resolutions adopted, and the State agricultural society reorganized. The fourth annual New England Conference on Rural Progress was held in Boston in March. A notable conference was held at the New York Produce Exchange in May, on the subject of increasing the productivity of New York farm lands. Chambers of Commerce, railroads, the grange, and agricultural societies joined in the call, and the attendance reached nearly a thousand. In April a meeting was held at Bryn Mawr College to consider the opportunities open to women in various branches of agriculture, horticulture, and stock raising.

The National Farm Homes Association was organized at St. Louis in May with Governor Hadley as president, as a philanthropic movement for encouraging and assisting people from towns and cities to establish homes in the country. The plan includes organizing farm colonies, each colony consisting of a central farm of 160 acres, held by the association, surrounded by 32 farms of 40 acres each, to be acquired by settlers on easy terms. The central farm will serve to instruct the new farmers, will be provided with creameries, mills and other machinery for community use, and will be a headquarters for marketing the produce of the colony.

In Europe rural depopulation and the difficulties growing out of it have made a problem which continues to receive much public attention. Various measures have been considered or set

on foot for remedying the situation and for enabling small farmers to acquire land. Efforts have been made in Denmark for the past ten years to facilitate the acquisition of allotments and small holdings by agricultural laborers. A law passed in 1904 has recently been re-enacted in amended form extending its applications and increasing the value of land which may be so acquired, the State advancing a sum not exceeding nine-tenths of the total value. Favorable terms for interest and repayment are provided. The law places at the disposal of the government a fund of over one million dollars annually for five years to assist in the acquisition of small holdings. Similar action has been proposed in Germany. In Russia a great impetus has been given to agriculture by the distribution of land to peasants which was formerly controlled by large land owners. Where the peasants formerly worked in communal districts, plots of land are now being assigned them for working individually. Following the adoption of this plan, the small credit societies for the assistance of the small farmers have increased at the rate of 1300 a year. The establishment of small banks in the country districts is being considered by the government.

There has been an unprecedented sale of landed property in Great Britain the past year. The market for agricultural land has been good, and the good prices offered have, it is stated, been a prominent factor in leading landlords to sell. The movement to supply small holdings, under an act for that purpose passed two years ago, resulted in 1909 in acquiring 60,889 acres in England and Wales. In the two years the act has been in operation land has been provided for sale or lease for approximately 6600 applicants, and applications have been received from nearly 27,000 persons for a total of 437,124 acres.

The labor problem on the farm continues to call for much consideration. A study of the conditions of agricultural labor in the Vexin district of France, presented before the Agricultural Society of France, showed the economic position of farm laborers to compare favorably with the lot of industrial workers generally. Social conditions are regarded as the chief cause of farm laborers abandoning the country, and to remedy this the erection on each large estate of a hall as a meeting place for entertainment and social purposes, with a library and other educational features, was recommended. In April, 1910, a law was passed in France for insuring and pensioning workmen, including the different classes engaged in agriculture. In Württemberg the experiment has been tried with success of providing places for the registration and care of agricultural and other laborers in search of employment. An investigation of farm labor in California, made under a special act of the legislature, resulted in securing data from 4100 farms. The average duration of employment was found to be less than two months in the year, and only 16.6 per cent. of the white laborers and 10.7 per cent. of the Japanese laborers were employed permanently. White labor was very generally preferred to any of the alien races, but is far from sufficient to meet the needs.

The agricultural credit system in France at the close of 1909 included 96 district banks, with 3127 affiliated local banks, having 147,140 members. The loans during the year aggregated over two million dollars. A new law was passed

during 1910 authorizing mutual credit societies to grant long-time loans to members in order to facilitate the acquisition and development of small holdings. The board of agriculture in Great Britain is working for the establishment of a system of credit banks, and to encourage the further formation of agricultural credit organizations, to assist farmers in times of distress or emergency.

The relative scarcity of crop-selling and exporting associations in Italy has been the subject of comment, and an increase in the number has been urged on the ground that it would tend to equalize prices between producer and consumer, and develop the highest efficiency in Italian agriculture. In Egypt there has been a movement for the organization of agricultural coöperative societies, with a view to improving the economic condition of the small land owners, which comprise a very large proportion of the rural proprietors. A commission appointed to investigate the subject has reported favorably and urged the passage of a law whereby such coöperative societies can be easily organized.

CONVENTIONS AND EXHIBITIONS. There was a large meeting of the Farmers' Coöperative Union at St. Louis in May, southern agriculture being especially represented. Out of the conference grew an alliance with the American Federation of Labor, and the formation of the American Coöperative Union, an attempt to eliminate the middleman by opening stores in large cities for the sale of farm produce direct to consumers. The Farmers' National Congress held its thirteenth meeting at Lincoln, Neb., October 6-11, many papers relating to education, extension, coöperation, and conservation in agriculture being presented. The fifth Dry Farming Congress was held at Spokane, Wash., October 3-6, with over 1200 delegates from the United States, Canada and abroad. These delegates represented about five billion acres of arid lands throughout the world, illustrating the extent of this interest. The consensus of opinion was that dry farming was passing from the experimental stage and becoming an established feature of agricultural development. The Minnesota Conservation Congress, held at St. Paul, March 16-19, aroused special interest among farmers, of whom over three thousand were in attendance. Particular attention was given to the agricultural phases of the problem of conservation. The Chicago Land Show, held the last of November, again illustrated the interest in land and served as a vast advertising campaign in behalf of the new sections and the old unsettled sections. The National Dairy Show, at Chicago in November, was the climax of dairy exhibitions. The International Livestock Exposition, held at Chicago in the latter part of November, was the world's greatest show of farm animals. It surpassed any of its ten predecessors in size—240 car-loads of stock, numbering 4345 head of cattle, sheep, swine and horses; and these exhibits were of unusually high quality. The New England Corn Show, at Worcester, Mass., held in November, was a great success and served to call attention to the high quality of corn which can be grown in the New England States and the good yields secured. A prize crop gave a yield of 127 bushels of shelled corn to the acre.

A jubilee of the German Agricultural Society, commemorating its twenty-fifth anniversary, was held at Berlin, December 8-14. Vast audiences in the building of the Prussian Diet listened to the congratulations of the German Emperor, the

Imperial Chancellor, the Prussian Minister of Agriculture, and other distinguished personages. The society was organized in December, 1885, with 2700 members. In 1910 the membership had reached 18,000. The society's annual show was held at Hamburg, June 2-7, with a larger attendance than any previous show. The 1911 exhibition will be at Cassel, June 22-27. At the annual meeting of the Royal Agricultural Society of England in December, it was announced that the membership had reached 10,129. The society is assisting agricultural research in a substantial manner. Its seventy-first annual show was held at Liverpool, June 21-25. The attendance was somewhat interfered with by the weather, but the exhibition itself was pronounced one of the finest the society has ever organized. The 1911 show will be held at Norwich on the Crown Point estate.

A society for the improvement of agriculture in Spain has been formed, to foster agricultural education, introduce modern farm machinery, improved plants and seeds, commercial fertilizers, insecticides and fungicides, and to promote the employment of improved methods in combating animal disease. International congresses of tropical agriculture, agricultural societies, and horticulture, were held at Brussels in connection with the Brussels Exposition. Agriculture was represented by one of the sections in the International Scientific Congress at Buenos Ayres, July 11-25. Resolutions were adopted advocating the formation of agrarian societies patterned after those in France, the greater use of agricultural machinery and additional instruction in the subject, the development of the sugar beet and cotton growing industries, and the adoption of uniform regulations in all American countries as to the importation and exportation of animals. An International Agricultural Exposition was held at Buenos Ayres during the summer, with exhibits from many foreign countries. The United States was the chief exhibitor among foreign nations.

UNITED STATES DEPARTMENT OF AGRICULTURE. The total number of employes of the Department, July 1, 1910, was 12,480, of whom 2414 were employed in Washington. The net increase in the force during the year was 1340. The appropriations by Congress for the work of the Department during the fiscal year 1910 aggregated \$17,029,036, including \$3,000,000 for meat inspection, \$1,344,000 for the State agricultural experiment stations and \$460,000 for printing and binding. For the rent of buildings in the District of Columbia the Department paid \$72,645.

The cases reported to the Attorney-General for prosecution under the several laws administered by the Department numbered 1738, twice as many as the year before. More than \$40,000 in fines and costs were assessed; hundreds of tons of misbranded foods and drugs were forfeited. During the fiscal year 1910 the Department issued 1983 publications, of which 1520 were new. The total number of copies printed was 25,160,469, of which over 9,000,000 copies were Farmers' Bulletins.

The Bureau of Animal Industry, besides its extensive service in connection with meat inspection (q. v.), has enlarged its work in cattle-tick eradication, over 57,000 square miles being released from quarantine during the year. The efficiency of the serum treatment for hog cholera, devised by the Bureau, has been strikingly demonstrated.

The agricultural explorers of the Bureau of Plant Industry have recently brought back many valuable plants from southwestern Asia, including a long-lived variety of alfalfa, a drought-resistant cherry, apricots with sweet kernels, hardy olives, etc. Experience of the last three years has shown that Rhodes grass, which has fine upright stems and good seed habits, is especially adapted to the Gulf coast region. The Kharkov variety of hard winter wheat has given excellent results. The destructive tumor disease of limes and other citrus fruits has been shown to be of fungus origin. The new method of spraying with sulphur compounds has been widely adopted by apple growers.

Conditions revealed in the course of the enforcement of the Food and Drugs Act have led to investigation of the process of manufacture and subsequent handling of fruit and dairy products, poultry, fish and oysters. See FOOD AND NUTRITION.

The Bureau of Soils has surveyed and mapped 359,504 square miles, or 230,120,960 acres since 1899.

The Bureau of Entomology, in coöperation with State authorities in New England, has conducted an active campaign against the gipsy and brown-tailed moth. Great service has been rendered to the citrus fruit growers of California and Florida, by investigations of hydrocyanic-acid gas fumigation for repression of scale insects and white fly.

The inspection of important nursery stock has prevented the introduction of many injurious insects. See ENTOMOLOGY.

The Biological Survey has carried on an active campaign against rats, which are carriers of bubonic plague, and the California ground squirrel, which has become plague-stricken. The most effective means of destroying the ground squirrel is the use of whole barley coated with a starch solution holding strychnine in suspension. Attempts to poison mice and chipmunks, which hinder attempts at reforestation by eating the tree seeds, have been very successful.

During the past year the Office of Public Roads built 55 object-lesson roads, illustrating 10 types of construction. An oil-cement concrete has been developed which promises to have a wide use in structures where strength, solidity and waterproof qualities are required.

The Forest Service has had a great struggle with forest fires which have been unusually destructive during the past two years. It is estimated that there are about 15,000,000 horsepower of water in the national forests which might be controlled and beneficially used. See FORESTRY.

The Office of Experiment Stations has enlarged its work in relation to the agricultural colleges, schools, experiment stations, extension departments and farmers' institutes (see AGRICULTURAL EDUCATION AND AGRICULTURAL EXPERIMENT STATIONS), and continued investigations on human nutrition with the respiration calorimeter (see FOOD AND NUTRITION) and on irrigation and drainage (see IRRIGATION AND DRAINAGE).

The Report of the Secretary of Agriculture for 1910 contains an interesting summary of the quantity and value of the year's crops, and a discussion of the farmer's share of the prices paid by consumers for agricultural products. The Secretary also claims that production per acre is increasing and overtaking the increase in population. The formation of coöperative or-

ganizations for the purchase of agricultural products directly from the farmers is advised.

**DEATHS.** Prof. Julius Kühn of Halle, Germany, a veteran teacher of agriculture and the head of the agricultural institute at the University of Halle from its organization, died April 14, 1910. Dr. O. Büttcher, vice-director of the experiment station at Möckern, Germany, and widely known for his investigations in animal nutrition, died February 2. Dr. Charles Anthony Goessmann, agricultural chemist and one of the oldest and most eminent agricultural investigators in the United States, died at Amherst, Mass., September 1, 1910. Dr. William Henry Brewer, associated with the history of the earliest undertakings in agricultural instruction, died at New Haven, Conn., November 2. Prof. Samuel B. Green, horticulturist and forester of the Minnesota College of Agriculture and Experiment Station, died July 11. Prof. John A. Craig, a breeder of livestock, one of the pioneers in instruction in animal husbandry, and formerly director of the Texas and the Oklahoma experiment stations, died August 9. Prof. Welton M. Munson, in charge of horticulture in the West Virginia University and Experiment Station, died September 9. Prof. J. S. Newman, of South Carolina, a pioneer worker for southern agricultural advancement, and for many years a teacher and experimenter, died May 11, 1910. James J. H. Gregory, a veteran seedsman, originator and writer on vegetables, of Marblehead, Mass., died February 20, 1910. See also articles on AGRICULTURAL EDUCATION; AGRICULTURAL EXPERIMENT STATIONS; DAIRYING; FERTILIZERS; SOILS; STOCK RAISING; ALFALFA; BARLEY; CORN; COTTON; HAY; OATS; SUGAR; TOBACCO, and other crops; the paragraphs on *Agriculture* in the respective articles on the States of the United States and on foreign countries; and the allied articles on BOTANY; FORESTRY; HORTICULTURE; FOOD AND NUTRITION; MEAT AND MEAT INSPECTION; VETERINARY SCIENCE; DRAINAGE; IRRIGATION, etc.

**AHMED MIRZA.** See PERSIA.

**AIRSHIPS.** See AERONAUTICS.

**ALABAMA.** One of the East South Central Division of the United States. Its total area is 51,998 square miles, of which 719 square miles are water.

**POPULATION.** The population of the State in 1910, according to the figures of the Thirteenth Census, was 2,138,003 as compared with 1,828,697 in 1900 and 1,513,401 in 1890, an increase from 1900 to 1910 of 16.9 per cent. The State ranks eighteenth among the States in population, the same relative place which it held in 1900. The population of the chief cities and towns, according to the Thirteenth Census, will be found in the article UNITED STATES CENSUS. The great industrial growth of the State in the last decade is shown in the remarkable increase in population in the city of Birmingham, which is the chief centre of the iron industries of the State. This city showed an increase from 38,415 in 1900 to 132,685 in 1910, or 245.4 per cent., a greater increase than was shown in the population of any other of the largest cities of the country.

**MINERAL PRODUCTION.** The chief mineral products of Alabama are coal and iron. In the production of the former it ranks fifth, being surpassed only by Pennsylvania, West Virginia, Illinois and Ohio. The production of coal in 1909 amounted to 13,703,450 short tons, having

a spot value of \$16,305,168. This was an increase of 2,098,087 short tons in quantity and \$1,657,297 in value over 1908. It was, however, 547,004 tons less than the record of 1907. With the exception of the latter year the production in 1909 was the largest in the history of the State. These figures indicate a recovery from the effects of the business depression in 1907-8. The conditions in 1909 were less favorable to the development of new properties than any former recovery from periods of depression. Mining in Alabama is carried on chiefly on the open shop basis. During 1909 the industry was not affected by labor troubles, not a single strike, suspension or lockout being reported. According to the State mine inspector, there were 129 men killed and 50 injured in the coal mines of the State in 1909, as compared with 108 killed and 58 injured in 1908.

Reports at the beginning of 1911 indicated the production for 1910 would reach the unprecedented total of 15,000,000 tons, as compared with 13,703,910 tons in 1909. The increase was due chiefly to the prolonged strike in Illinois and the western States, and to river conditions which existed during the year and which materially reduced the shipments from Pennsylvania and other northern States to New Orleans and other lower Mississippi points and added to the demand from that section for Alabama coal. There were no strikes of any consequence in the coal mines of the State during 1910, and the labor supply was, on the whole, satisfactory, although in places there was a decided shortage. The coal mining industry was affected during the year by two bad disasters, which altogether cost the lives of 131 men. The first was at the Mulga mine on April 20, and cost 40 lives; the second was at Palos on May 5, and cost 91 lives. The number of lives lost in these two accidents was more than the number of lives lost in the coal mines of the State either in 1909 or in 1908.

A small quantity of gold is produced. This was valued in 1910 at \$29,416, as compared with a value of the product of 1909 of \$29,200.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909-10 are shown in the following table:

		Acreage	Prod. bu.	Value
Corn,	1910....	3,524,000	63,432,000	\$45,037,000
	1909....	3,233,000	43,646,000	37,099,000
Winter	1910....	130,000	1,560,000	1,763,000
Wheat,	1909....	98,000	1,029,000	1,338,000
Oats,	1910....	297,000	5,494,000	2,296,000
	1909....	270,000	4,455,000	3,118,000
Rye,	1910....	2,000	24,000	29,000
Rice,	1910....	1,000	25,000	18,000
	1909....	1,000	35,000	28,000
Potatoes,	1910....	18,000	1,440,000	1,354,000
	1909....	17,000	1,360,000	1,333,000
Hay,	1910....	120,000	172,000a	2,270,000
	1909....	110,000	166,000	2,241,000
Tobacco,	1910....	600	300,000b	60,000
	1909....	600	360,000	104,400
Cotton,	1910....	.....	1,174,000c	.....
	1909....	.....	1,024,000	.....
a Tons.	b Pounds.	c Bales.		

The chief feature in the agricultural development of the State in recent years has been the increase in the corn crop. It has, however, slightly increased in acreage and greatly increased in production and value in 1910, as compared with 1909. Cotton is the chief agricultural product of the State. The crop in 1910 showed a slight increase over that of 1909.

Since 1903 the value of the crop has greatly exceeded that of the years previous. The other crops, as will be seen from the table above, show about the same acreage in 1910 as in 1909.

**EDUCATION.** There were in 1910 687,374 children between the ages of 6 and 21 in the State. Of these 380,142 were white and 307,232 were colored. The total enrollment in the schools of the State, including all institutions, public, private and denominational, was about 76 per cent. among the whites, and 48 per cent. among the colored. The total enrollment of white children in the public schools was 279,982, and in the colored public schools, 142,813. The average daily attendance among the white children was 176,500, and of the colored children 89,000. The number of schools for white children in 1910 was 4424, and for colored children, 1965. There were employed in the schools of the State 6434 white teachers, and 2243 colored teachers. Of the white teachers 2272 were males and 4162 were females. The average monthly salary for white male teachers was \$70 and for female teachers, \$46. The average monthly salary for colored male teachers was \$30 and for colored female teachers, \$25. The total expenditures for public schools during the year was \$2,746,473. Of this, \$2,417,378 was paid for the maintenance of white schools and \$329,094 for the maintenance of colored schools.

**FINANCE.** The report of the treasurer for the fiscal year ended September 30, 1910, showed a balance in the treasury on December 30, 1909, of \$712,024. The receipts for the fiscal year amounted to \$5,368,144, and the total disbursements to \$5,646,096, leaving a balance in the treasury on September 30, 1910, of \$433,471. The total bonded debt of the State at the end of the fiscal year amounted to \$9,057,000. The interest paid on this debt in 1910 amounted to \$357,450.

**CHARITIES AND CORRECTIONS.** The charitable and correctional institutions of the State and the sums paid for their maintenance in 1910 were as follows: Alabama Insane Hospital, \$325,947; Alabama School for the Deaf, \$38,410; Alabama School for the Blind, \$19,952; Alabama School for Negro Deaf and Blind, \$11,500; Alabama Girls' Industrial School, \$36,000; Alabama Industrial School for White Boys, \$19,700. The aggregate expenses of these institutions for the year amounted to \$416,510.

**POLITICS AND GOVERNMENT.** There was no regular meeting of the legislature in 1910, as the sessions in Alabama are quadrennial and the last regular session was held in 1907. There were, however, special sessions called in the intervening years to act on Prohibition and other political questions. The next regular session begins January 10, 1911. The most notable feature in the political history of the State during 1910 was the virtual repudiation of the State-wide Prohibition statutes which have existed in the State for nearly two years. A partial test came in the fall of 1909 when the Prohibition constitutional amendment was voted upon. While the measure was overwhelmingly defeated at this time, there was still some doubt in regard to the attitude of the people of the State toward the policy of Statewide Prohibition, because there were possibly those who, while they favored the policy, were not willing to see it placed forever in the organic law. The Democratic primary for Governor and members of the legis-

lature, which was held on May 3, 1910, was the real test of public sentiment on the question. In this contest the local option element was represented by Emmett O'Neal of Florence county for Governor, while the Prohibitionists had as their leader Col. H. S. D. Mallory. Colonel O'Neal was nominated by over 15,000 votes. The result was somewhat complicated, however, by the fact that E. Perry Thomas of Barbour county, a State Senator who had voted against and fought all the stringent Prohibition laws and who was the candidate for Lieutenant-Governor on the local option ticket, was defeated by Walter D. Seed of Tuscaloosa, a staunch Prohibitionist. Mr. Seed served for four years as State Treasurer. The attitude of the people was shown still more strongly in the election for delegates to the State convention, which met shortly after the primary. This convention was overwhelmingly for local option, although it went on record as in favor of a "fair and impartial trial" of the Prohibition laws. It was no less pronounced, however, on its advocacy of local option. The results in the legislative tickets were almost equally pronounced. The House of Representatives was overwhelmingly for local option, while the majority of the Senate will doubtless favor a modification of the present laws for the counties containing the larger cities. Jefferson county, containing Birmingham, Montgomery county, containing Montgomery, and Mobile county, containing Mobile, will probably have high-licensed saloons, or at least the sale of light wines and beer at cafés and restaurants.

Another political feature of the year was the rapid development of the sentiment in favor of commission government for cities instead of the aldermanic system. It is probable that nearly all the larger cities in each county will be placed under this form of government by the legislature of 1911. Birmingham and Montgomery both voted favorably on the question for such form of government.

**OTHER EVENTS.** One of the most important industrial events of the year was the beginning of work by the United States Steel Corporation on its Village Creek dam project, which will cost \$8,000,000. The project was well under way at the end of 1910. It will supply water to all the company's plants in the district. Work has also begun on the American Steel and Iron Company's new mill at Ensley, which will cost \$3,000,000. This will probably be completed in the summer of 1911. There were two unusually disastrous accidents during the year. An explosion at the Mulga mine of the Birmingham Coal and Iron Company on April 20 resulted in the death of 40 men. An explosion in the Palos mine of the Palos Coal and Coke Company on May 5 cost 91 lives.

**STATE OFFICERS:** Governor, Emmett O'Neal; Lieutenant-Governor, W. D. Seed; Secretary of State, Cyrus B. Brown; Auditor, C. B. Smith; Adjutant-General, Bibb Graves; Attorney-General, R. C. Birkell; Treasurer, John Purifoy; Superintendent of Education, H. J. Willingham; Commissioner of Agriculture, R. F. Kolb; ex-officio Commissioner of Insurance, Cyrus B. Brown—all Democrats.

**JUDICIARY:** Supreme Court: Chief Justice, J. R. Dowdell; Associate Justices, Ormond Somerville, A. D. Sayre, John C. Anderson, R. T. Simpson, J. J. Mayfield, and Thomas McClellan; Clerk, R. F. Ligon, Jr.—all Democrats.

## STATE LEGISLATURE, 1911

	Senate	House	Joint Ballot
Democrats . . . . .	34	100	134
Republicans . . . . .	1	4	5
Populists . . . . .	—	—	—
Demo. maj. . . . .	33	96	129

The State representatives in Congress will be found in the article UNITED STATES, section Congress.

**ALABAMA.** See MINERALOGY.

**ALASKA.** A territorial possession of the United States, situated at the northwestern extremity of North America. The total area, according to the revised survey of 1906, is 586,400 square miles. The government of the Territory is as yet unorganized. The population, according to the census of 1910, is 64,356, as compared with 30,507 whites and 29,536 natives in 1900. The Territory is divided into four Judicial divisions: The First Judicial Division, with a population of about 9000; the Second Judicial Division, with Nome as its centre of population, 7000; the Third Judicial Division, with Valdez and Cordova as centres of population, 7000; and the Fourth Judicial Division, with Fairbanks as the centre of population, 10,000. The present and prospective conditions in the Territory are such as to promise a large increase in its population in the next few years. The population is engaged almost entirely in mining, railroad construction and fishing, and occupations incident thereto. A few people are engaged in truck farming, chiefly near the mining camps.

**AGRICULTURE.** The agricultural development of the Territory is as yet inconsiderable, but steady progress was made during the fiscal year 1910. There is no longer any doubt in regard to the agricultural possibilities of Alaska. It has been proved that hardy vegetables and cereals suited to northern latitudes can be grown in Alaska with great success. Important work is being carried on in testing and selecting the varieties best suited to the country, and in developing new varieties which shall be better suited to the climatic conditions than anything now produced. This work has engaged the attention of the Agricultural Experiment Station during 1910. At the Rampart Station grain crops matured and experiments were made in cross-fertilizing for the production of new varieties. At Sitka Station success has been achieved in developing more than a score of varieties of strawberries, which seem to be better adapted to Alaska than any of the known cultivated varieties. Several new homesteads were taken up by settlers during the year, and there is a considerable number of settlers who have lived on their homesteads for more than five years, but have been unable to secure a title to their lands because there was no appropriation of money by Congress to pay the expenses of surveying. At the Kodiak Experiment Station a herd of Gallo-way cattle is maintained with great success. This breed is well adapted to the country. Cattle of other breeds have also done well on Kodiak Island and in other parts of Alaska for many years. A small flock of hardy sheep was added during the year to the livestock at the Kodiak Station and sheep breeding will henceforth receive attention.

**MINERALS AND MINING.** The total mineral production of Alaska in 1909 was about \$20,200,000. The production was almost entirely of gold, the value of which was about \$20,463,000, as

compared with \$19,600,000 in 1908. Of this, the placer production was \$16,322,000, the lode production, including gold derived from copper ores, was \$4,107,363. The largest output was yielded by the Yukon placers. Practically all the Yukon camps made increased production in 1909, those in the Tanana valley leading, with about \$10,150,000. Of this amount the Fairbanks district produced about \$9,650,000. All the placer camps were prosperous except those of Seward Peninsula, where the dry weather curtailed the output. A new discovery of gold placers was made on Otter Creek, the northern tributary of the Haiditarod River in the Innoko Valley. Thousands of prospectors and miners flocked to this district from all parts of the Territory, as well as from points outside. A government survey of the district was under way. The total gold production of Alaska at the close of 1909 was \$162,686,455, of which \$118,219,757 came from placers, and \$44,466,698 from lodes. The record of production begins with 1880.

Mining of copper was less active in 1909 than in 1908. The output for the former year was valued at \$536,211, as compared with \$605,267 in 1908. The low market price of copper prevented several mines from resuming operations, but the building of the railway from Cordova to the Chitina region and its prospect of early opening to traffic will cause a large increase in the copper production. The ores of this region are of exceptionally high grade. The total production in pounds in 1909 was 4,124,705. Among other minerals, tin, gypsum and marble were also produced in small quantities.

The gold fields of Alaska, largely on account of the place that they occupy in the field of politics, have been much in the public mind in 1909-10. The political aspects will be found under the article PUBLIC LANDS and the article UNITED STATES, paragraph Administration. The principal coal fields of the Territory remained idle during the year 1910 because of the inability of claimants to secure title. The long delay in the issuance of patents to coal lands and the popular clamor against all Alaskan coal claimants has discouraged claimants and investors so that not only was there no industrial advance in the mining of coal, but in some regions there was a decided retrogression. The coal is widely distributed in Alaska, but the only fields which can yield coal for export are those in the Pacific slope province. The coal in these fields includes the lignitic or bituminous coals of southeastern Alaska, Cook Inlet, the Susitna basin and the Alaska Peninsula, as well as the high grade fuels of the Bering River and the Matanuska fields. About 40 per cent. both of the area known to be underlain by coal and of the estimated area of all the coal fields of the Territory, falls in this province. It includes also at least 90 per cent. of the known bituminous and higher grade coals of the Territory. Coal is also found in the central provinces and in northern Alaska, although the extensive deposits in the latter region are too remote to have any present importance and must be regarded simply as a part of the ultimate fuel resources of the world. Two influences have held back the development of the Bering River and Matanuska fields. One has been the advancement made in the California oil districts, and the other the unfortunate conditions existing in regard to the laws under which Alaska coal lands can be taken up. The latter is by far the more serious of these obstacles. According to

the estimates of the Geological Survey, the marketable Alaska coals of the Pacific slope amount to fifty or sixty billion tons, worth in the ground about half a cent a ton.

**TRANSPORTATION.** Only one of the railway projects of the Territory made any progress in actual construction during 1910. The outlook for extensive railway building in developing the general resources has not improved since 1909. The Alaska Central Railway, which in 1909 extended its track to miles 75, on the projected route from Resurrection Bay to the Matanuska coal fields and to some favorable points on the Tanana River, was sold under the order of the district court, and is now incorporated as the Alaska Northern Railway. No new construction was done on this line during the year. The construction of the Copper River and Northwestern Railway, which is building a narrow-gauge road through the lower valley of the Copper River into the Chitina region, was continued up to December, 1909, when the weather became too severe. Work was continued in the spring of 1910 and about 101 miles of track have been completed. By September 25, 1910, trains were in operation from Cordova, the tide-water terminal, to Chitina, a distance of 131 miles. The continuation of the present prosperity of the mining industry in Alaska is dependent on the cheapening of operating costs by the improvements in means of transportation. The present industrial advancement of inland Alaska is small as compared with that which will take place when railway communication with the tide-water has been established. There are now about 370 miles of railways distributed among nine different systems.

The construction of wagon roads and trails progressed steadily during the year. The benefits derived from these methods of transportation have been so generally appreciated that the available funds have been found too small to meet the popular demand for more roads.

**COMMERCE.** The shipments of domestic merchandise from the States to Alaska in the fiscal year 1910 were larger than in any prior year, the increase being due in some measure to activity in railway construction in the Copper River Valley. The commercial movement from Alaska to the States, including gold and silver of domestic production, was larger than in any other year except 1909. The total value of the merchandise shipped from the United States to the Territory in 1910 was \$17,972,647, of which hardware and machinery were valued at \$5,709,558; provisions, \$5,930,196; lumber, \$527,053; liquors, \$654,821; and coal, \$208,359. The value of the merchandise and precious metals shipped from Alaska to the United States in 1910 was \$34,628,535, as compared with \$34,335,435 in 1909. Of this amount the gold shipped was valued at \$18,393,128 and the merchandise, including fish and furs, was valued at \$12,349,462.

**FISHERIES.** Next to mining, the fishing industry is the most productive of the Territory. There are employed in this industry about 13,000 persons, of whom about 3000 are natives. The investment, exclusive of cash capital, amounted to about \$10,000,000, and the export value of the product to about \$12,000,000. The most important of the fisheries is the salmon and the yield of 1910 was highly profitable, owing to the advance in value of all grades of salmon. The total pack of the canneries amounted to about 2,375,000 cases of four dozen 1-lb. cans each.

This was valued at \$9,434,946. The value of the other fish exported, including halibut, cod and herring was \$869,861. Whalebone was exported to the value of \$136,520.

**NATIONAL FORESTS.** During 1910 steps were taken toward the further adaptation of the Forest Service administration to local conditions in Alaska. Provision has been made for scaling forest reserve timber at the mill instead of at the place of cutting, thus obviating delays which under the former system were vexatious. The amount of timber cut from the reserves during the fiscal year 1910 was 15,471,000 board feet, which probably represents about half the amount cut in all of Alaska, including wood used as fuel. The receipts of the Forest Service in the Territory were \$19,502.

**FURS.** The value of the furs exported during the fiscal year 1910 was \$574,764, which was an increase over the value of the product of 1909, which was \$537,162. The 61st Congress at its second session passed an important measure relating to the seal fisheries of Alaska. Under this enactment the Secretary of Commerce and Labor has power to authorize the killing of fur seals and the taking of seal skins on the Pribilof Islands in Alaska. New regulations shall be issued by him prescribing the manner in which such killing shall be done and limiting the number of seals to be killed whenever he shall determine that such killing is necessary or desirable, and not inconsistent with the preservation of the seal herd. This act also provides that no person shall kill any otter, mink, marten, sable or fur seal or other fur-bearing animal within the limits of Alaska Territory, or in the waters thereof, under penalty of a fine of not less than \$200, nor more than \$1000, or imprisonment of not more than six months, or both. The vessels and equipment engaged in violation of this section shall be forfeited. The Secretary of Commerce and Labor has power to authorize the killing of any such fur-bearing animals under such regulations as he shall prescribe. Fur-bearing animals enumerated below may be hunted and killed in the Territory of Alaska, except during the season specified with respect to each of them:

Sea otter: The hunting or killing of sea otter is prohibited until November 1, 1920.

Beaver: The hunting or killing of beaver is prohibited prior to November 1, 1915.

The hunting or killing of land otter, mink, musk-rat, marten, fisher and ermine is prohibited throughout the season from April 1 to October 31 of each year.

The hunting and killing of black bear is prohibited throughout the season from April 1 to July 31.

The hunting or killing of fox, wildcat or lynx is prohibited throughout the season from April 1 to September 30.

Permits or licenses may be issued by the Secretary of Commerce and Labor for the taking of fur-bearing animals for scientific purposes and for shipment to zoological parks.

**EDUCATION.** During the year 1910 steady improvement was made in the public school system of the Territory, in the schools provided both for white children and for native children. White schools supported by local license moneys and taxes are maintained in the incorporated towns as follows: Chena, Cordova, Douglas, Eagle, Fairbanks, Haines, Juneau, Ketchikan, Nome, Petersburg, Skagway, Valdez and Wrangell. Three new white schools were established during the year in settlements other than incorporated













towns. The number of these schools is now 21. In the schools in the incorporated towns there were during the year 621 pupils. The cost of maintaining these schools was \$36,486. Improvement has been made in the means and methods of educating the native inhabitants, a work which is being carried on by four local superintendents and a corps of teachers under the direction of the Commissioner of Education at Washington. The number of native schools was increased during the year from 69 to 75.

**INDIANS.** The condition of the Indians of Alaska has greatly improved in the last few years. This is due to a number of reasons, among which are the reindeer industry, marked improvement in the means and methods of instruction in the schools, and the enforcement of a new law further penalizing the sale of intoxicating liquors to natives. The development of the reindeer industry for the benefit of the Eskimo inhabitants has been carried forward with marked success. In 1910 the number of the reindeer exceeded 26,000 in 39 herds. The Eskimo becomes the absolute owner of reindeer only after he has served an apprenticeship of five years and proven his efficiency and fidelity. The civilizing effect of the reindeer industry among the Eskimos, who are naturally a people of ready intelligence and adaptability has been remarkable. The natives of the southeastern part of the Territory are in many instances industrious and almost always law abiding. Their efficiency in the mines and fisheries is impaired chiefly by the use of liquor, and the enforcement of the act approved February 6, 1909, making whiskey peddling a felony and resulting in many convictions, has had a beneficial effect. Instruction in the manual arts is well adapted to the needs of the native people. The greatest menace to the native people in Alaska is the presence of infectious diseases. The employment of physicians by the Bureau of Education for the treatment of natives and for their instruction in hygiene and sanitation has brought valuable results.

**POLITICS AND GOVERNMENT.** The recommendations made by President Taft in his annual message to Congress in December, 1909, for a plan for an organized system of government for Alaska, unfortunately did not pass through Congress. His recommendations were repeated in the message of December, 1910. The President is of the opinion that Alaska is not yet ready for self government, largely on account of the scattered nature of the population. A further discussion of his recommendations will be found in the paragraphs on *Congress* in the article **UNITED STATES**. In his annual report for 1910 the Governor of Alaska states that in his opinion the following laws are most urgently required for the Territory: A law opening coal lands to development; government aid for railway construction; continued appropriation for wagon roads and trails; aids to navigation; changes in mining laws; registration of vital statistics; sanitation and public health; compulsory school attendance; relief of destitution among white inhabitants; and amendment of the game laws.

In July and August, 1910, the Attorney-General of the United States and the Secretary of Commerce and Labor made a tour through the Territory. Their visit was extremely gratifying to the people.

In April a United States Marshal and District

Attorney were dismissed by President Taft for incompetency.

Investigations were carried on during the year of alleged attempts at conspiracy to defraud the government by unlawful acquisition of coal lands in Alaska, and on October 15, seven men, residents of Seattle and British Columbia, were indicted on this charge. These men were in two groups, one led by C. F. Mundy and Algernon F. Strachey, and the other by Cornelius Christopher and George Simmons. It was alleged that the two groups were seeking to acquire by fraudulent entry about 24,000 acres of coal land, valued by the government at \$100,000,000. This coal land is in the Bering River coal fields, in which also is the land covered by the Cunningham claims. On November 3, these men were indicted by the Federal grand jury at Spokane, Washington, charged with conspiracy to defraud the government out of more than 20,000 acres of coal lands in Alaska, valued at \$200,000,000. The indicted men were Raymond Brown and William L. Dunn, of Spokane, Charles M. Doughton, Harry White, formerly Mayor of Seattle, Charles A. McKenzie, of Seattle, and Donald A. McKenzie, of Washington and Alaska. The charges were that the indicted men had agreements with 131 men who took up claims of 160 acres each in Karak, the mining district of Alaska, whereby they were to get a half interest in this land.

**OFFICERS:** Governor, Walter E. Clark; Secretary to the Governor, William H. Loller; ex-officio Secretary of Alaska, William L. Distin; Delegate to Congress, James Wickersham.

**JUDICIARY:** First Division: Thomas R. Lyons, Juneau; Second Division: C. D. Murane, Nome; Third Division: Edward E. Cushman, Valdez, Fourth Division: P. D. Overfield, Fairbanks.

**ALASKA, GOVERNMENT OF.** See **UNITED STATES**, section *Congress*.

**ALASKA COAL LANDS.** See **ALASKA**; **LANDS, PUBLIC**; and **UNITED STATES**.

**ALASKAN EXPLORATION.** See **NATIONAL GEOGRAPHIC SOCIETY**.

**ALASKA-YUKON-PACIFIC EXPOSITION.** See **EXPOSITIONS**.

**ALBANO, ELIAS FERNANDEZ.** See **NECROLOGY**.

**ALBAUGH, JOHN W.** See **NECROLOGY**.

**ALBERT I.** See **BELGIUM**.

**ALBERTA.** A province of Canada (since September 1, 1905). Capital, Edmonton. Area, 253,540 square miles. Population (est., 1910), 321,862. For details, see **CANADA**. The government consists of the Lieutenant-Governor (George H. V. Bulyea in 1910 and since September 1, 1905), who is appointed by the Governor-General of Canada, of the Executive Council (a responsible ministry of four members), and of the unicameral Legislative Assembly (41 members elected for five years). Premier in 1910, A. L. Sifton.

**ALCOHOL.** New and valuable data upon the subject of alcoholism in its relation to heredity and the generative tissues were brought to light during 1910. Clinical experience and statistical evidence have long taught that paternal alcoholism had a harmful effect upon the offspring, and that alcoholism injures the germinative cells. Forel supported this view with statistics from insane asylums and gave the name "*blastophthorie*" to the lesions observed in the germinative cells of alcoholics.

Experiments with animals also indicate that chronic alcoholism in the male leads to the production of defective offspring. In 1898 Simonds, of Hamburg, found that azoospermia characterized 60 per cent. of chronic alcoholics. Now Bertholet, in 39 autopsies on chronic alcoholics under 50 years of age, reports that he found in all but two of these cases chronic degenerative testicular changes quite different from those characteristic of ordinary senile involution; in proportion to the degree of atrophy present, the process of spermatogenesis is defective, a total absence of spermatozoa being often noted.

The subject is viewed from a somewhat different angle by Elderton and Pearson, who examined more than 3600 school children with regard to the addiction or non-addiction of their parents to alcohol. A higher death rate was found among school children who were the offspring of alcoholic parents than among the children of sober parents, and the mortality was higher when the alcoholism was maternal than when it was paternal. It appeared, however, to be due to accidents and gross carelessness on the part of the parents, rather than to transmitted frailty. In average height and weight, the surviving children of alcoholic parentage equalled those of non-alcoholic, and the general health was slightly better. These apparently contradictory observations are explained by the fact that the high death rate of the children of such parents permits only the fitter to survive, and the further fact that the defective children of alcoholics (imbeciles, idiots and insane) are not to be found in the homes of the alcoholic parents, but are confined in public institutions for such defectives. They are not to be found in the schools. Hence Elderton and Pearson's results are of questionable, if of any, value.

The effect of alcohol on large populations is shown in a statistical study of the subject in Austria, where there are eight different nationalities: Germans, Czechs, Italians, Hungarians, Roumanians, Ruthenians, Slavonians, and Poles. The Germans and Italians drink mostly wine and beer, the Hungarians only wine, while the other nationalities consume large amounts of gin, whiskey or brandy. Drinking among women and children is quite common in these races, even babies being fed with diluted spirits. The lower the social standard, the more alcohol consumed. It has been shown that a peasant family will spend 10 to 15 per cent. of their income on drink. The results of these conditions are seen in the recruiting for military service. While 60 per cent. of the Germans, Italians and Hungarians are found physically fit to enter the army, only 35 per cent. of the poorer Slav youths are able to pass muster.

Hultgen in a study of 460 cases of chronic alcoholism tried to determine which of the various bodily tissues or organs was most damaged. Neuropathic and psychopathic lesions were found in 92.5 per cent. of the cases. He says that the nerve cells contain more lipid substances and lecithins than any other cells, and that alcohol exercises a selective narcotic action upon them. Morbid conditions of the nervous system are rarely absent in chronic alcoholism. The next most striking effects of alcohol are seen in the gastro-intestinal system. Pharyngitis, gastritis and hepatic disorders occur in 82.7 per cent. of all cases studied. The lungs and kidneys, on the other hand, contrary to the general belief, he found to suffer very little.

Alcohol did not appear to irritate the kidneys, and only 9.1 per cent. of the cases showed evidence of nephritis, and this is more reasonably attributable to exposure, over-eating and disorders of metabolism. See **INSANITY**.

**WOOD ALCOHOL.** The dangerous properties of methyl alcohol as a drink are well known, and even its vapor when inhaled may damage the eyesight. According to Muller, a German physiologist, pure methyl alcohol is no more poisonous than grain alcohol. If so, it is the impurities developed in its manufacture that furnish the poisonous elements. This probably explains why different specimens of wood alcohol vary in toxicity, and may lead to a method by which the toxic substances can be eliminated during its manufacture. See **CHEMISTRY, INDUSTRIAL**.

**ALDRICH, NELSON WILMARTH.** See **UNITED STATES**, section *Congress*.

**ALDRICH, THOMAS JOSHUA.** See **LITERATURE, ENGLISH AND AMERICAN**.

**ALDRICH-VREELAND CURRENCY ACT.** See **CURRENCY**.

**ALENÇON, FERDINAND PHILIPPE MARIE, Duc d'.** A French nobleman, died June 29, 1910. He was born in 1844 at Neuilly, the second son of Louis, Duc de Nemours, and the grandson of Louis Philippe, King of the French. He was fourth in order of succession to the French throne and was second cousin to the Duc d'Orléans, the French Pretender. In 1868 he married Sophie Herzogin zu Bayern, who died in 1897, leaving him two daughters and a son. The greater portion of his time was spent at his villa at Wimbledon, England.

**ALEXANDER, BOYD.** An English traveller, explorer and naturalist, murdered by natives in the French Congo in May, 1910. He was born in 1873, and was educated at Radley College. He entered the Militia Battalion of the Rifle Brigade in 1893 and was made captain in 1898, after his return from the Cape Verde Islands, to which he had led a scientific expedition. In 1898-9 he was the leader of another expedition which explored the Zambesi River. He was then appointed to the Gold Coast constabulary. In this service he took part in the relief of Kumasi in 1900, and in 1902 was appointed to a commission in the regular Rifle Brigade. In 1904 he returned to the field of exploration and led a scientific expedition to Fernando Po. This expedition succeeded in ascending Mount St. Isabel and discovered many new birds. The following three years he spent with the Alexander-Gosling expedition, which crossed Africa from the Niger to the Nile. The two other leaders of the expedition died, but Alexander continued the work of exploring the upper basin of the Welle and ascended the Kibali. He then led an expedition northward and crossed the Congo-Nile watershed to the Yei. On his return from Africa in 1907 he retired from the army. In the early part of 1909 he explored various islands in the Gulf of Guinea and then continued on to the Kamerun country, ascending to the craters at the summit of the mountains. He was in this region during the earthquake of April, 1909. He received a gold medal from the Royal Geographical Society of Antwerp in 1907, and was made a gold medallist of the Royal Geographical Society of London in 1908. His writings include the results of his African trips. *From the Niger to the Nile*, in two volumes, "Birds of Kent" in

the *Victoria History of England*, and many papers in scientific journals.

**ALEXANDER, EBEN.** An American educator and diplomat, died March 11, 1910. He was born in Knoxville, Tenn., in 1851, and graduated from Yale College in 1873. From 1873 to 1876 he was instructor and professor of ancient languages in the University of Tennessee, and from 1886 to 1893 was professor of Greek at the University of North Carolina. In 1900 he became Dean of the University. From 1893 to 1897 he was United States Minister to Greece, Rumania and Servia.

**ALEXANDER, H. B.** See LITERATURE, ENGLISH AND AMERICAN, section *Poetry and Drama*.

**ALEXANDER, SAMUEL.** An American surgeon, died November 29, 1910. He was born in New York City in 1858 and graduated from Princeton College in 1879. He studied medicine in Bellevue Medical College, graduating in 1882. In the following year he studied abroad at London, Leipzig and Vienna. Upon his return to the United States he was appointed attending surgeon at Bellevue Hospital, and he remained connected with that hospital until the time of his death. He held professorships in Bellevue Hospital Medical College and the Cornell Medical College. He was widely known in scientific circles as a surgeon and writer.

**ALEXIS, NORD.** President of the Republic of Haiti from 1902 to 1908, died May 1, 1910. He was said to have been over one hundred years old at the time of his death, but more probably he was about 90. He was born, according to the best authorities, at Cape Haytien, August 1, 1820, and was the son of Baronet de Nord Alexis, a member of the court of Henri Christophe, who in 1811 called himself King Henry I. of Haiti. At the age of nineteen he became a soldier and was appointed aid to President Pierrot of Haiti, whose daughter he married in 1845. He served several terms as governor of two of the provinces of Haiti. In 1865 he joined a revolution against President Geffrard, which was successful until Cape Haytien, the stronghold of the revolutionists, was bombarded by a British gunboat. Alexis escaped on a United States gunboat to Santo Domingo. Here he and Salnave, the leader of the insurrection, plotted another revolution. In 1867 they returned to Haiti. Salnave proclaimed himself protector of the Republic and in 1869 became dictator, but the people arose and overthrew him, and he was tried and shot. In the provisional government which followed, Alexis was made Minister of War. Five years later he was exiled by one president, but returned within a year, only to be exiled by another. In 1879 he returned to the island during the régime of President Salomon and was twice arrested. In 1888 he took part in the revolution which followed the flight of Salomon, and supported Seide Thélémaque, who aspired to the presidency. Thélémaque was defeated and killed, but Alexis rallied his soldiers and succeeded in gaining a temporary victory over the Salomon faction, headed by President Légitime. Under Presidents Hippolyte and Simon Sam, Nord Alexis served as governor of the north and north-west parishes of the Republic. In 1902 Sam resigned the presidency, and a provisional government was formed. After threatened revolution, Congress demanded Nord Alexis as president, and he was elected by the National Assembly. He was the twentieth ruler of Haiti in one hundred years. Alexis at once began a rule of militarism

and his rule was tyrannical and arbitrary in the extreme. He put down several threatened insurrections with great barbarity, and not until 1908 was effectual resistance made to his rule. A revolutionary army had possession of about half the Republic and was rapidly drawing near the capital, when in December, 1908, the people of Port au Prince suddenly arose, seized the administration buildings and called upon Alexis to come out and be killed. He would have resisted, but the foreign consuls urged surrender, and under the protection of the French Consul he left the palace and embarking on a French vessel, sailed to Kingston, Jamaica, where, with the exception of a short visit to the United States, he remained until the time of his death. Alexis was a striking figure, of great height, with a face intensely black. He was said to have been a believer in voodooism, and to have practiced the savage African rites. He was reputed to have died enormously rich.

**ALEY, ROBERT JUDSON.** See MAINE, UNIVERSITY OF.

**ALFALFA.** The constant increase in the acreage of the alfalfa crop was continued in 1910 and in general good yields were secured. The fact that this crop is well adapted to irrigation and is also much more resistant to drought than most of the grasses grown for hay, saved many localities from hay crop failures. No general statistics regarding the crop exist, but data for some States are available. Kansas had about 1,000,000 acres of alfalfa in 1910 and produced over 2,000,000 tons of alfalfa hay. In Oklahoma the acreage was about 25,000 and the yield about 50,000 tons. Ohio had 23,136 acres distributed through all the counties of the State with an estimated yield of 68,519 tons. In Massachusetts and other New England States the crop is slowly spreading and more successful attempts to grow it were reported this year than heretofore. Alfalfa also made good progress in the south. Farmers in Mississippi met with most encouraging success, and in other Southern States the crop was further introduced and distributed. In most Western States alfalfa mills for grinding alfalfa hay into meal increased in number, and progress was also made during the year in the improvement and the manufacture of machinery for this purpose. The work of the experiment stations and the agricultural colleges continued to point out that alfalfa can be grown successfully in many localities in limestone and other fertile regions, and that the crop as a source of protein is a valuable substitute for the high-priced nitrogenous feeding stuffs. The practice of growing the crop in rows and cultivating it gave much better results than broadcasting the seed. This method finds favor especially on weedy soils in regions of a low rainfall, and in localities where crab grass is a nuisance. Farm experience showed that disking the crop should be done only when the plants are old and have formed heavy crowns. Disking young crops gave injurious results in different parts of the country. More alfalfa hay was fed to hogs than in former years, and the third cutting is preferred for this purpose. The seed of alfalfa demanded a high price, and in some northern alfalfa seed growing sections from 12 to 18 cents per pound was secured on the farm. The alfalfa leaf weevil (*Phytonomus murinus*) which made its appearance in Utah several years ago was found in 1910 to cover the greater portion of several counties. On the acreage of Salt Lake County

this year a loss of 80 per cent. of the first crop, or 6300 tons, was sustained as a result of weevil injury.

**ALGERIA.** A French colony on the northern coast of Africa, which constitutes administratively an integral part of the French Republic. Capital, Algiers.

**AREA, POPULATION, ETC.** Total area, including Northern and Southern Algeria and the Algerian Sahara, is variously estimated at from 343,000 to 393,000 square miles. Population (1906), inclusive of military, 5,231,850 (729,960 Europeans). Marriages (1907), 39,351; births, 155,062; deaths, 104,135; still-births, 2349. Algiers had (1906) 154,049 inhabitants; Oran, 106,517; Constantine, 58,435; Bône, 42,934; Tlemcen, 39,757.

**SCHOOLS** (1907): 1358 primary and infant, with 3489 teachers and 159,581 pupils; Mussulman, 286 (no return of pupils); secondary, 21, with 5802 pupils; normal, 4, with 259 students. There are higher Mussulman schools, and at Algiers a (European) professional college with 1509 students.

**PRODUCTION.** The area under wheat in 1909 was 2,814,000 acres (1908, 3,389,000); yield, 34,769,000 bushels (1908, 29,814,000). The yield in 1910 was officially estimated at 39,371,000 bushels, of which 29,119,000 bushels were durum wheat. Under oats (1908), 3,208,275 acres; barley, 334,768. In 1909, vines covered 309,695 acres, yielding 181,031,820 gallons of wine; under olives, 172,973 acres, yielding (estimate) 6,366,000 gallons of oil. Under forest, 6,156,000 acres (state, 5,300,000). About 93 per cent. of the livestock belongs to the natives. The mines yielded (1907) iron ore, 973,000 metric tons; lead ore, 15,300; zinc ore, 71,000; copper ore, 16,300; total value of output, 21,634,043 francs. Output of phosphates, 373,763 tons (11,216,500 francs). Value of fisheries output (1907), 3,865,730 francs.

**COMMERCE.** The special commerce is given below for four years in thousands of francs:

	1906	1907	1908	1909
Imports	401,700	448,200	449,300	450,800
Exports	280,300	338,500	319,200	329,200

Revised details of exports for 1908 are given as follows: Wine, 72,916,000 francs; animals, 47,309,000; cereals, 39,861,000; olive oil, 16,523,000; cork, 15,365,000; phosphates, 12,246,000; zinc, 10,836,000; fruits, 10,152,000; iron ore, 9,683,000; wool, 7,386,000; esparto, 6,796,000; tobacco, 6,574,000; skins, 6,303,000; vegetables, 5,736,000; fish, 5,660,000. Trade with France (1908) showed imports amounting to 399,008,000 francs, exports 273,967,000; Great Britain, 15,480,000 and 17,789,000; Morocco, 11,873,000 and 5,090,000; Brazil, 7,529,000 and 2000; United States, 5,805,000 and 1,776,000; French possessions, 4,547,000 and 22,001,000. Vessels entered (1908), 4728, of 4,905,713 tons; cleared, 4794, of 5,028,964.

**COMMUNICATIONS.** Railways in operation, December 31, 1909, 3256 kilometres. Length of telegraph lines (1908), 14,690 kilometres; wires, 38,936; telephone lines, 13,924; telegraph offices, 690; post-offices, 635. Algiers is an important coaling station.

**FINANCE AND GOVERNMENT.** The unit of value is the franc, worth 19.3 cents. Revenue and expenditure (1908), 115,186,178 and 108,078,035

francs respectively; 1909 estimate, 127,120,094 and 127,071,518. The estimates for 1910 are 138,895,887 and 138,890,408 francs respectively, detailed as follows:

Rev.	1000 fr.	Expend.	1000 fr.
Taxes	52,706	Debt, etc.	18,437
Domains	7,848	Interior	23,850
Monopolies, etc.	8,640	Native affairs	5,498
Various	2,526	Finance	9,395
Exceptional	600	Posts & Tels.	11,153
D'ordre	26,884	Pub. Works	21,829
Extraordinary	39,692	Agriculture, etc.	8,753
		Various	283
		Extraordinary	39,692
Total	138,896	Total	138,890

For the Southern Territories (1910) revenue and expenditure are estimated at 5,621,094 and 3,613,063 francs respectively. Communal debt (end of 1907), 67,440,036 francs.

Algeria is administered by a governor-general (1910, M. Jonnart), aided by a consultative council. The legislative power rests with the French Chambers.

In February the Chamber voted to provide a battalion of 800 Senegalese riflemen for the Algerian service. At the annual opening of the Algerian Delegations in May, the Governor-General, M. Jonnart, reported the Algerian finances on a sound basis, the receipts being sufficient to meet any expenses that could be foreseen. The home government, however, had in the past charged the country with unexpected expenses and had imposed on it social legislation that entailed financial burdens. This tended to retard the policy of the colonial administration, which sought to place Algeria on an independent financial basis. M. Jonnart declared that the "present régime which purposes to emancipate Algeria and interest her in her own affairs, to accord her the benefit of a needful and advantageous financial decentralization, could not maintain itself and function regularly without the friendly coöperation of the authorities, and an earnest effort on their part to reconcile the national policy to the needs of a new country in process of development."

**ALIENS.** See IMMIGRATION.

**ALKALI, REMOVAL OF.** See DRAINAGE.

**ALLDS, JOTHAM P.** See NEW YORK, paragraphs *Government and Politics*.

**ALLEN, A. M.** See LITERATURE, ENGLISH AND AMERICAN.

**ALLEN, JAMES LANE.** See LITERATURE, ENGLISH AND AMERICAN.

**ALLINSON, ALFRED.** See LITERATURE, ENGLISH AND AMERICAN.

**ALLINSON, C. E.** See LITERATURE, ENGLISH AND AMERICAN, section *Travel and Description*.

**ALLINSON, F. G.** See LITERATURE, ENGLISH AND AMERICAN, section *Travel and Description*.

**ALLOYS.** See CHEMISTRY.

**ALL RED ROUTE.** See CANADA.

**ALMONDS.** See HORTICULTURE.

**ALMSHOUSES.** See CHARITY.

**ALSACE-LORRAINE.** See GERMANY, paragraphs on *History*.

**ALUMINUM.** See CHEMISTRY, INDUSTRIAL, paragraph on *Metals*; ATOMIC WEIGHTS.

**ALUMINUM COINS.** See CHEMISTRY.

**AMADOR, MARTIN.** A Colombian public official, died March 13, 1910. He was born in Colombia in 1857, a son of Manuel Amador, President of the Republic of Bolivia from 1867 to 1870. He came to the United States in his youth

and graduated in 1878 from the medical department of the University of New York. After serving for some time as an assistant in the charity hospital on Blackwell's Island, New York City, he became professor of anatomy, physiology and surgery in the University of Cartagena. He was later Consul-General of Colombia in Holland and Belgium, and afterwards Vice-Consul of the United States in Colombia. In 1893 he settled in Brooklyn, N. Y., where he had an extensive medical practice.

**AMBASSADORS.** See UNITED STATES, paragraph *Diplomatic Service*.

**AMBROSE CHANNEL.** See HARBORS.

**AMENDMENT TO FEDERAL CONSTITUTION.** See TAXATION.

**AMERICA, LATIN.** See PAN-AMERICAN UNION and articles on Central and South American countries.

**AMERICAN ANTI-BOYCOTT ASSOCIATION.** See BOYCOTT.

**AMERICAN ASSOCIATIONS AND SOCIETIES.** The associations and societies whose official title begins with the word American will be found under the titles of the subjects in which they are interested. For example, for the American Academy of Political and Social Science, see POLITICAL AND SOCIAL SCIENCE, AMERICAN ACADEMY OF.

**AMERICAN CANAL.** See CANALS.

**AMERICAN INSTITUTE OF CRIMINAL LAW AND CRIMINOLOGY.** See PENOLOGY.

**AMERICAN PRISON ASSOCIATION.** See PENOLOGY.

**AMERICAN SUGAR REFINING CO.** See TRUSTS.

**AMES, E. S.** See LITERATURE, ENGLISH AND AMERICAN, section *Philosophy and Religion*.

**AMES, JAMES BARR.** An American lawyer and educator, died January 8, 1910. He was born in Boston, Mass., in 1846, and graduated from Harvard College in 1868 and from the Harvard Law School in 1872. In 1868-9 he taught in a private school in Boston and in 1871-2 acted as tutor in French and German at Harvard College. In the following year he acted as instructor in history in the same institution. From 1873 to 1877 he was associate professor of law at Harvard and in the latter year was made professor of law. In 1895 he was appointed Dean of the Harvard Law School. He compiled collections of cases on torts, pleading, bills and notes and other legal subjects, and was the author of numerous articles in the *Harvard Law Review* and other reviews.

**AMHERST COLLEGE.** An institution of higher learning at Amherst, Mass., founded in 1821. The attendance in 1910 was 530 and the faculty numbered 48. There were no notable changes made in the faculty during the year and no noteworthy benefactions were received. The total productive funds of the college amounted to about \$2,250,000, and the present income to about \$150,000. There are 90,000 volumes in the library. The President is George Harris, LL. D.

**AMOBY, ROBERT.** American physician, writer and lecturer, died August 27, 1910. He was born in Boston in 1843 and graduated from Harvard College in 1863 and from the Harvard Medical School in 1866. In 1870-71 he was lecturer at Harvard College on the physiological action of drugs. From 1872-75 he was professor of physiology at Bowdoin College. From the latter year until the time of his death he was en-

gaged in the practice of medicine in Boston. He was widely known and quoted as a writer on medical themes, and was the author of several works on physiology and therapeutics.

**AMPHIBOLE ASBESTOS.** See ASBESTOS.

**AMUNDSEN'S EXPEDITION.** See POLAR RESEARCH.

**ANÆSTHESIA.** GENERAL ANÆSTHESIA: NEW METHODS. Several new methods of inducing general anesthesia were proposed during 1910, having for their object an increase in the safety of the procedure and a diminution of the amount of anæsthetic used. Franke applied the Esmarch bandage to the extremities, either the thighs or arms, or both, preliminary to giving chloroform. By this method a considerable portion of the blood is shut off from the influence of the anæsthetic, with the result, he claims, that much smaller amounts were necessary to induce and maintain sleep than by the ordinary methods. The patients were anæsthetized without any phase of agitation, respirations were regular and there was no cyanosis, salivation nor vomiting. The pulse was somewhat disturbed on removing the bandages. The return of the blood, laden with carbon dioxide, acted as a stimulant to respiration, and the patient returned to consciousness in less than ten minutes after suspension of the anæsthetic. It is necessary that the limbs be free from varicose veins and eczema. The method is not entirely without the possibility of unpleasant complications. Seven out of seventy-five cases anæsthetized in this way developed thrombosis of the veins of the bandaged limbs, in the experience of Grüfenberg.

Chloroform was administered intravenously by Giani at Durante's clinic in Rome. The injection was made into the saphenous vein (in the thigh). Normal salt solution, saturated with chloroform, was used. Eleven hundred c.c., representing 6.6 grams of anæsthetic, were injected in one case. The anæsthesia lasted forty minutes, and seven minutes after the cessation of the infusion the patient awakened. In another case, 1500 c.c., containing about 9 grams of chloroform, were infused during the seventy-five minutes required for the operation. This patient roused in five minutes.

**SPINAL ANÆSTHESIA.** This method continued to excite comment, mostly unfavorable, during the past year. Hohmeier and König, for instance, examined the records of 2400 cases of spinal anæsthesia in 41 well-known institutions. They found that the procedure was responsible for 12 deaths, and that a rather large proportion of the patients suffer, sometimes years later, to an unusual extent from paræsthesias, neuralgia, weakness, headache or vertigo. That grave injury to the central nervous system may be done seems to be settled.

Spiller and Leopold studied the effects of stovain on the spinal cord and the spinal nerve roots, when injected into the medullary canal, as in spinal anæsthesia. Dogs were used in the experiments. They determined that the paralysis occurring after stovain anæsthesia was of the motor type, the anterior spinal nerve roots being affected. Symptoms of ataxia, impaired sensation, and loss of tendon reflexes supervened and became permanent after the third injection. Microscopical study of the spinal tissues showed that a true degeneration of the anterior nerve roots took place, together with certain portions of the cord itself. While the authors would not apply their findings too strictly to man, yet their

experiments indicate that repeated injections of stovain into the same individual might be attended with considerable risk.

**ELECTRIC ANÆSTHESIA.** The induction of general anæsthesia by means of electric currents still remains a fascinating problem. Tait and Ross, of the University of California Hospital, found that they could produce a satisfactory anæsthesia in certain of the lower animals, but that the technical difficulties were many. In dogs, they were able to induce a general loss of sensation without loss of consciousness. These experimenters tried the current on themselves and on others, but in twenty-four trials on human beings they were unable to obtain any phenomena at all resembling sleep. Regional anæsthesia, however, by means of electricity, has proved practicable. Dr. Louise G. Robinovitch produced total anæsthesia of the lower extremities in an individual in whom it was necessary to amputate the toes for gangrene. She used a storage battery. Electrodes were placed over the nerves supplying the tissues to be anæsthetized. The negative electrode was applied over the base of the spine (sacrum) and three positive electrodes were placed respectively over the anterior crural, anterior tibial and posterior crural nerves. Two meters, one for voltage and one for amperage, were employed. The meters registered 54 volts and 4 milliamperes respectively, and the current was interrupted 6000 to 7000 times per minute. Anæsthesia was complete at the moment of applying the current, and lasted 45 minutes.

**ANDREW, A. PIATT.** See **CENTRAL BANK.**

**ANDREWS, WESLEY R.** An American politician, died February 5, 1910. He was born in Warren county, Pa., in 1837. In the campaign of 1856, before he had reached his majority, he organized the John C. Frémont Marching Club. At that time he was living in Jamestown, N. Y. He served during the Civil War in a New York regiment, and at its close he engaged in business in New York City. Removing to Meadville, Pa., he established the *Meadville Tribune-Republican*. He became affiliated with Matthew S. Quay, and when the latter was elected chairman of the Republican State Committee, he selected Mr. Andrews as the committee's secretary. In 1905 he was elected chairman of this committee and held that position up to the time of his death. He had great ability as a political organizer and under his control the Pennsylvania State organization conducted its successful campaigns.

**ANDRUS, ELIAS VAN A.** See **NECROLOGY.**

**ANGLICAN CHURCH.** See **ENGLAND, CHURCH OF.**

**ANGLO-AMERICAN CHESS MATCH.** See **CHESS.**

**ANGOLA.** A Portuguese colony in western Africa. It has an estimated area of 500,000 square miles, and is divided into six districts: Congo, Loanda, Benguella, Mossamedes, Huilla, and Lunda. The population is estimated at from three to four millions. Capital, St. Paul de Loanda; other important towns, Cabinda, Ambriz, Novo Redondo, Benguella, Mossamedes, and Port Alexander. There are about 2400 pupils in the several schools, and various missions have been established. Coffee, rubber (in diminishing quantities), wax, sugar, vegetable oils, cocoanuts, ivory, oxen, and fish are the principal products. Malachite, copper, iron, petroleum, salt, and gold are found; and asphalt is

worked by a British syndicate. Imports (chiefly textiles) for 1908 were valued (exclusive of Congo) at 5,137,219 milreis (1 milreis=\$1.08); exports, 3,730,463 milreis. On March 31, 1909, the total length of railways open for traffic was 510 miles; 127 miles of the new line from Lobito Bay to connect with the Central African system have been completed. In 1907 there were 1940 miles of telegraph lines, 63 offices and 122 post-offices. In 1908 there entered at the various ports 1741 vessels of 1,005,004 tons. The revenue and expenditure for 1909-10 were estimated at 2,528,609 and 3,678,344 milreis respectively. The colony is under a Governor-General (1910, Lieutenant-Colonel Alves Roçadas).

**ANKYLOSTOMIASIS.** See **HOOKWORM DISEASE.**

**ANNAM.** A French protectorate in French Indo-China (q. v.). Area, 61,718 square miles. Estimated population (Annamites in the towns and coast regions, Moïs in the hills) in 1909, 7,994,425. The capital is Hué, with 65,000 inhabitants. Confucianism is the popular religion; there are some Buddhists, and 420,000 Roman Catholics. There were (1909) six schools for Europeans (with 86 pupils), 26 official (1568) and 20 other (875) Franco-Annamite schools, and 90 official native schools (14,653). Paddy, rice, corn, cotton, coffee, timber, rubber, cardamoms, betel, tobacco, etc., are grown; the mines produce kaolin, coal, lead, zinc, copper, iron, gold and silver. Raw silk is produced. The trade is included with that of French Indo-China (q. v.). In 1910 there were in operation 511 kilometers of railway. Telegraphs and cables connect with Saigon and Hanoi. The annual budget balances at about 3,000,000 dollars. Annam has no debt. The collective provincial budgets balance at about 700,000 dollars annually. The king, Duy-Tan (born 1899; succeeded September 9, 1907) is under the control of a council of regency. French resident-superior (1910), J. H. Groleau.

**ANNIVERSARIES.** See **EXPOSITIONS and UNIVERSITIES and COLLEGES.**

**ANOPHORITE.** See **MINERALOGY.**

**ANTARCTICA.** See **POLAR RESEARCH.**

**ANTARCTIC EXPLORATION.** See **POLAR RESEARCH.**

**ANTHROPOLOGY AND ETHNOLOGY.** Anthropological activity during 1910 is characterized by the peaceful continuation of the intensive specialist studies begun in previous years. In physical anthropology there have been no discoveries or early human remains comparable to those of the past two years, but many theoretical discussions of the significance of these finds from an evolutionary point of view.

**OPPOSING SCHOOLS.** In ethnology, aside from the ever increasing contributions to descriptive ethnography, there continues the struggle between the classical English school, which insists on the formulation of general laws of cultural development and what might be called the "historical" school of American and German ethnologists, who conceive the development of culture as a series of unique historical happenings which must be studied with regard to their specific settings and are not amenable to generalized treatment. While the latter point of view seems dominant among professional students of ethnology, precisely the reverse holds true for the numerous sociologists, philosophers, economists and historians nowadays more or less intensively

occupied with the interpretation of ethnological data.

**TOTEMISM.** A clash of these antagonistic tendencies has occurred during the past year in the treatment of one of the subjects that has for many years most actively stimulated discussion in anthropological and sociological circles. While the traditional evolutionary standpoint is assumed by Frazer throughout his recent *Totemism and Exogamy*, the opposite method is followed by Goldenweiser in his *Totemism, an Analytical Study*. In two important conclusions, indeed, these authors coincide: both minimize the religious factor of totemism, and accordingly the part played by totemism in the development of religion; and both consider exogamy as essentially distinct from totemism. In the positive interpretation of totemism, however, there is a fundamental disagreement. Frazer conceives totemic phenomena as essentially the same the world over, and bases a general theory of their origin on the beliefs of the Central Australian natives, these being in his opinion the most primitive of living peoples. The Central Australians believe that natural features at different localities within their territory are haunted by the spirits of people belonging to one particular totem group, the totems varying with the locality. If a woman feels the first signs of approaching maternity in a certain locality, the belief is that one of the spirits dwelling therein has entered her body and will be reborn as a child. Frazer contends that this phase of totemism was antedated by a still more primitive stage at which people believed that the stone, plant or animal totem itself (not merely the spirit having such a totem) had entered the mother's body and was reborn in human form. This "conceptional" theory would explain that identification of totemites with their totems which constitutes the essence of the institution, and all such elements as the taboo against the killing of the totem, or the belief in descent from the totem would be naturally derived from the physiological theory as to the nature of conception held by primitive man. While Frazer thus reduces totemism to a single primitive form, Goldenweiser views totemic phenomena as the result of convergent lines of social evolution. A comparison of two typical totemic areas, British Columbia and Australia, brings out the fact that there is a fundamental difference between the totemic systems of these regions. Features which have acquired a predominating influence in Australia, such as the magical ceremonies for the multiplication of the totems, are found wanting in British Columbia; on the other hand, the extraordinary development of totemic art on the coast of Northwest America has no parallel in Australian conditions. A wider survey shows that the several traits ordinarily looked upon as distinctive of totemism are found the world over, both dissociated from other totemic features and combined with one another in many different ways. That is to say, the totemic complex does not conform to a single type, but is an extremely unstable combination of elements. It becomes clear then that if the concept "totemism" is to retain any usefulness it cannot be defined in terms of the symptoms or criteria ordinarily assumed, but must be considered as indicating a process rather than a fixed institution. Goldenweiser accordingly arrives at the conclusion that totemism is the association of a definite social group with objects or symbols of emo-

tional value, the perpetuation of this relationship being effected by descent. See also below in paragraphs under *Asia and Oceania*.

**SOMATOLOGY.** Considerable interest was aroused in biological circles by Boas's preliminary report on the changes in bodily form of descendants of immigrants. Contrary to the hitherto accepted doctrine of the permanence of physical traits, and more particularly of the cephalic index, it would now appear that children of immigrants vary very considerably from the ancestral type. The skulls of East European Jews have an index of 84; that of their American-born children is 81. On the other hand, the index of native Sicilians is 78, while that of their American-born children is 80. This does not establish, as popular misrepresentations of these investigations would lead one to suppose, a mystical tendency to the formation of a unified "American" race, but simply confirms the suggestion previously made that certain traits of supposedly high classificatory value, owing to their imperfect stability, can no longer be viewed in this light.

A suggestive treatment of the Pygmy problem has been undertaken by Father Schmidt. Schmidt distinguishes the genuine Pygmies—brachycephalic tribes with frizzy hair and a stature falling below 150 cm.—from dolichocephalic wavy-haired peoples of slightly taller stature, such as the Veddahs and Senoi, whom he classes as "Pygmoids." The Pygmy race accordingly includes only the Negritoes, Andamanese and Semang in Asia, and the Central African Pygmies and Bushmen of the Dark Continent. These genuine Pygmies, according to Schmidt, form a single somatological type, which can be connected with earlier ontogenetic stages of human development than the Neanderthaloid forms; they are the descendants of the common ancestors of all the taller human types. This biological argument is supported by the ethnological consideration that the Pygmies, lacking even the cultural acquisitions of the Australians, must be considered as the owners of the very oldest cultural elements. These views have been in part overthrown. Schwalbe has pointed out that the African Pygmies are mesocephalic and dolichocephalic and the Bushmen dolichocephalic. To this writer the Pygmies do not seem to form a uniform race, but are merely local sports in point of stature and otherwise closely related with their taller neighbors. Most important of all, the great geological antiquity of the Neanderthal race and its greater affinity with ape forms leaves no doubt as to its occupying a lower position in the genealogical tree of humanity.

Berry, Robertson, and Cross have coöperated in a biometrical examination of Australian and Tasmanian skulls, the two former having also discovered and published dioptrographic tracings of 42 hitherto undescribed Tasmanian skulls and thus very materially increased our craniological data on this now extinct race. One principal result of this investigation is that the Australian skulls are less homogeneous than the Tasmanian ones, though more so than those of the Papuans. That is to say, the Tasmanians seem to constitute a relatively pure race, while the Papuans are the least pure of the three races considered. An equally suggestive line of inquiry was followed in comparing and grading with regard to phylogenetic rank the calvaria of the Tasmanians, anthropoid apes, various low races living and extinct, and of modern Europeans. It appears from the data at hand that the Tas-

manian, while in most measurements nearer to extinct human forms than other recent varieties, nevertheless falls well within the range of variation of *Homo sapiens*, being immeasurably superior to the Spy-Neanderthal type. The very high rank given to the Cannstadt skull according to these recent measurements is wholly in accord with the purely morphological estimate of these remains by Schwalbe and other authorities. *Pithecanthropus erectus* appears to be, as has also been previously contended, a transitional form distinctly nearer the anthropoid apes than to the Neanderthal type.

**AMERICAN LANGUAGES.** Parts of the first volume of the *Handbook of American Languages* have at last been issued from the government press. The Introduction by the editor, Professor Franz Boas, contains some important observations on the philosophy of language and the relation of linguistics to ethnology. While classifications of mankind have hitherto attempted to take into account physical, cultural and linguistic features at the same time, the work of the past decades has made it clear that such mixed classifications are futile. Race, language and culture develop independently of one another and a useful classification of mankind can be made only by each of these factors taken singly. Many quasi-problems disappear when this fact is fully understood; thus, the so-called Aryan question could never have been broached had the disputants recognized that there is no necessary correlation between race, speech, and culture. Language serves to express an infinitude of concrete experiences, but with a limited number of phonetic complexes. That is to say, it economizes the effort required in speech communication by classifying experiences from certain points of view. The categories thus established depend largely on the special interests of each people, and are accordingly distinctive of the several languages, or linguistic families. While in written languages the single word seems a sufficiently definite unit of speech, this does not hold for the languages of uncivilized tribes, where the interpretation of a sound, or series of sounds, as a distinct word frequently depends merely on its phonetic strength. The line between stem and affix is also often hard to draw; thus, in Algonkin dialects almost all verbs consist of several elements in conjunction, each in a definite position, but each group so numerous that it would be arbitrary to consider the one as stems and the other as affixes. In the matter of grammatical categories, it is interesting to note that modes of classification are quite different in North American languages from those employed in Indo-European speech. Thus, the Eskimo do not classify their nouns at all, while the Algonkin classify them not on the basis of sex gender, but as names of animate or inanimate objects, respectively. The idea of number is frequently not clearly expressed, though in some cases there is not only a plural, but also a dual, and even trial, number. Nominal cases are very rare, though case-relationship is sometimes expressed in the pronoun. Verbal categories also may differ widely in Indian tongues from those familiar to the student of European languages; sometimes there is but a single mood or tense, on the other hand there occur in other languages delicate differentiations in the expression of time and mode, such as tenses denoting the beginning or duration of an act. It has often been contended that Indians (and other

primitive peoples) are unable to form abstract concepts because of the lack of abstract terms in their speech. Boas shows that this conclusion is fallacious, inasmuch as Indians readily form abstract ideas and corresponding terms when the necessity arises; their apparent rarity is due to the fact that in ordinary Indian life such terms are not required. The relation of linguistic to other ethnological phenomena is of the greatest importance. Boas finds that both have developed unconsciously, but differ in that the categories of language hardly ever rise into the consciousness of the speakers while religious and social phenomena become the subject of conscious reflexion and interpretation. American languages have usually been defined as *polysynthetic*, i. e., as uniting by grammatical processes a large number of distinct ideas into a single word, and also as incorporating the object in the verb. Boas shows that the latter tendency is but weakly developed in the majority of North American languages, while polysynthesis is indeed very highly developed in Eskimo and Tsimshian speech, but is in other stocks reduced to a minimum. However, other traits appear, which, while not absolutely universal, nevertheless hold for many of the Indian linguistic families. Most important among these is the tendency to divide verbs into an active and a neutral group, these being distinguished by association with distinct sets of pronouns.

**BLACKFOOT CULTURE.** Wissler has taken up the question of the early habitat of the Blackfoot and the problems connected with their material culture. Contrary to Grinnell, he finds no evidence that the Blackfoot ever occupied other territory than their historic habitat in the northwesternmost part of the Plains area. Culturally, there is little in the material side of Blackfoot life to differentiate them from their neighbors of the Plains. Thus, nearly all their food habits are shared by the tribes of the Saskatchewan and Upper Missouri; it is only in a few utensil forms that they evince some individuality, while owing to their marginal position they have adopted some culinary methods from the inhabitants of the Plateau region. In dressing skins the Blackfoot likewise fall in line with other buffalo-hunting peoples, using such typical implements as the adze-shaped scraper and rubbing skins over twisted cords in the way peculiar to this geographical group. In transportation the Blackfoot use two types of travois, both the one with a netted hoop employed by the Dakota and Assiniboiné, and the form with a rectangular frame found among the Plains Cree, Gros Ventre, Arapaho and Sarcee. The form of their cradles allies the Blackfoot with their western neighbors, the Shoshone and Nez Percé. The Blackfoot resemble the Crow, Hidatsa, Sarcee, and Comanche in erecting their lodges on a foundation of four poles, while the other Plains tribes use three. A comparative discussion of Blackfoot clothing leads to the interesting result that the men's shirt was not used as an everyday garment throughout the Plains area, though as a dress shirt for gala occasions its use was general during the historic period. The wearing of shirts for ordinary costume occurs among the northwestern Plains tribes, some Shoshone and Salish, as well as among the Cree and eastern Dene, so that this custom may be reasonably regarded as a northern characteristic. Like several other tribes of the Plains, the Blackfoot employed a sinew-backed bow. The latter, however, is dis-

tinctive of the tribes to the West and must be regarded as intrusive wherever it occurs east of the Rocky Mountains.

**INDIAN AGRICULTURE.** The hitherto little-noticed subject of Indian agriculture has been discussed by Parker with special reference to the Iroquois use of maize. On the basis of modern botanical and archaeological investigations, Parker is able to refute the opinions occasionally expressed as to the non-American origin of Indian corn. Maize proves to be a development of a Mexican grass known as teosinte (*Euchlaena mexicana* Schrad.); a sport of this plant, by crossing with its normal ancestor, probably gave rise to our cultivated variety. The claim of the Indian race to having contributed this important cereal to the foodstock of the Old World civilization is thus vindicated. So far as the Iroquois methods of cultivation are concerned, the first step was to clear the land by girdling the trees to make them die and burning the underbrush. Certain fields were reserved for the use of the nation, but others were owned by individuals, whose plots were marked by posts painted with the owner's clan totem and individual name sign. For cultivation of the communal fields the women of each settlement elected a chief matron, who planned all the processes of planting, cultivation, and harvesting. In preparing the soil a hoe was used, the blade being of bone, antler, or wood. At planting time each community celebrated a thanksgiving festival accompanied by prayers and sacrifices. After the harvest in autumn, the maize was carefully stored away, the shelled corn in bark barrels, the braided bunches being hung up inside the houses.

**CULTURE OF THE DIEGUEÑO.** Waterman's researches among the Diegueño of Southern California are important as refuting the erroneous opinion that this Yuman-speaking people is allied in religion and mythology to the surrounding Shoshonean groups. This view is based mainly on the prominence of a cult centering in the use of jimson weed for the purpose of securing a vision. This cult, Waterman shows, has indeed been introduced by the Shoshoneans of California, but its presence among the Diegueño is recent, while the creation myth, the interpretation of large dry-paintings, the symbolism associated with the cardinal directions, and other features connect Diegueño culture with that of other Yuman tribes. The importance of initiation rites for both boys and girls at the time of puberty is very marked, and the annual mourning ceremonies found elsewhere in California are still practised.

**YAKIMA.** Archaeological investigations by Harlan I. Smith in the Yakima Valley established the similarity of the prehistoric culture of this region to that of recent times. The archaeological finds prove to be typical of the Plateau culture area. The strongest affinity of the Yakima sub-area is with the Thompson River region of interior British Columbia, while there is relatively less evidence of contact with prehistoric people of Puget Sound and the Pacific Coast of Washington.

**CENTRAL AND SOUTH AMERICA.** Additional reports of Dr. Lehmann's investigations establish the relationship of the Sumo and Mosquito languages. The Mosquito are great navigators and their cedarwood dugouts seem to connect them with the South American Indians. On the Pacific coast of Central America, favorable natural conditions have promoted the develop-

ment of a higher civilization, than along the Atlantic border. The influence of Mexican culture seems to have extended as far as Nicaragua and the Nicoya Peninsula. The ceramic and metallurgical products of southeastern Costa Rica and Chiriqui are connected with those of Colombia and Peru. This archaeological affinity is confirmed by the linguistic relationship obtaining between Talamancan and neighboring Panaman tongues on the one hand and the Chibcha languages of Colombia on the other. In the large lowland area of Bolivia east of the Andes, pioneer work has been done by Erland Nordenskjöld. In this area the Swedish archaeologist finds a culture practically independent of the Bolivian highland civilization. On the other hand, his ceramic finds seem to indicate a connection with Central America and the northernmost part of South America.

In a final report Professor Saville describes *The Antiquities of Manabi, Ecuador*. As compared with Esmeraldas, the Manabi culture differs in the rarity of stone implements, while the art of sculpture is more highly developed. Moreover, the corral type of house is missing in the province of Esmeraldas. In view of the proximity of Peru, the number of specimens indicating Peruvian origin is very small, proving that the influence of Inca culture on the coastal inhabitants of Manabi was slight. Only in the Island of La Plata, which was used as a place of worship, some foreign material from Peru was found, more particularly specimens of gold and earthenware. The Rio Guapi appears to mark the northern limit of the culture area dealt with by Professor Saville.

Our knowledge of Peruvian textiles has been enlarged by Dr. Schmidt's recent investigations. It appears that the textiles from Pachacamac manufactured during the "Tiahuanaco" period differed fundamentally from those of later times, both in structural technique and the absence of a loom, while they resemble in both respects the textiles of ancient Ica. This relationship between Ica and Tiahuanaco fabrics is accentuated by the exclusively geometrical character of the woven designs on both. The newly discovered weavings from Pachacamac, however, are distinguished by a wholly different style of ornamentation. Realistic scenes are represented either woven into the textiles or painted on plain cotton weavings. Fishermen in boats (*balsas*) form a favorite subject and the prominence of plant motives is especially noteworthy, distinguishing the art of this period and region from that of all others in South America. In some cases the weaver seems to have aimed at the depiction of everyday life, while other compositions suggest mythological motives.

#### AFRICA

**NATIVE CULTURE IN KAMERUN.** In Africa Dr. Ankermann's explorations have, for the first time, shed light on the ethnological conditions in the "grassy" (as opposed to the woodland) districts of Kamerun. Physically, the natives of this area are distinguished by tall stature, fairly well-developed beards, faces of at times approximately North African type, frizzy but rather long hair, permitting elaborate coiffures. Politically, the district is divided into a number of small states of which Bali and Bamum are the most important. Like other negroes, these tribes have a rather complex mythology in which animals play an important part, but the

religious practices seem to be divorced from the mythical heroes and centre in the worship of the ghosts of the deceased. In Bali the chief acts as high-priest, but ceremonial functions are also presided over by religious societies distinguished from one another by specific musical instruments, badges, and paraphernalia. The principal festival is celebrated at the beginning of the dry season and seems to have formerly inaugurated the period of predatory war-expeditions which coincided with this season. Other public ceremonies are intended to promote the growth of the crops. The houses are mostly rectangular in ground-plan, with pyramidal or dome-shaped roofs. Each wife occupies a house of her own, while the head of the family has a separate habitation. Economically, cattle-raising and the chase are entirely subordinated to horticultural pursuits. Pottery is very highly developed; the women manufacture earthen vessels while the men make earthen pipe-bowls. Some of the more highly ornamental ceramic products seem to be patterned on wooden forms manufactured in the same region, wood-carving having also attained a very high degree of perfection. While iron metallurgy is general throughout the region, the art of brass casting is confined to a few localities, the technique being *à la cire perdue*. Linguistically, all the tribes are of Bantu stock, but their speech has been considerably influenced by Sudanese contact. In their culture likewise the tribes of northwestern Kamerun present an intermediate type. Certain traits are derived from the Benue region, and the Bali men wear garments almost identical with the *tobes* of the Hausa. On the other hand, the carving on drinking-horns resembles that of the Bakuba (Congo) so closely as to eliminate the possibility of independent origin, and strangely enough a peculiar form of parrying-stick almost duplicates forms known from East Africa.

**WAREGA.** The Congolese Warega, whose territory extends from the Lualaba to lakes Tanganyika and Kiwu, have been described by Delhaise. Most interesting is the division of both men and women into social castes, entrance into a higher class being essentially dependent upon the wealth of the candidate, who is obliged to undergo a partly religious ceremony. These classes are genuine secret societies and by their activity in public life constitute a check on the chief's authority.

**BAKULIA.** Through Lieutenant Weiss's investigations the hitherto little-visited Bakulia of northern German East Africa have become better known. Owing to the frequent incursions of the Masai, the Bakulia villages are nestled among huge boulders which nearly shut out the view of them completely from the highways; they are further fortified with euphorbia hedges and at times with stone walls. The huts are round in ground-plan and have a separately thatched roof. In many traits the Bakulia ape the Masai, e. g., in the perforation of the ears for the suspension of huge ear-plugs. Economically they are cattle-raisers and agriculturists, the cattle being the humped variety, and the principal crops cultivated are millet and eleusine. Puberty ceremonies, which include surgical operations on both sexes, recall in part those of the Masai.

**THE KIKUYU.** Much new information on the Kikuyu has been placed on record by Mr. and Mrs. Routledge. The Kikuyu are an agricul-

tural Bantu-speaking people in many details influenced by the neighboring Masai. This influence is most clearly seen in their clothing and the forms of their weapons. Many curious customs seem to have been introduced from the same direction. Among these is the drinking of warm blood from living animals and the practice of spitting by way of benediction or for ceremonial purposes. The political organization was formerly extremely loose, the head of the family homestead exercising patriarchal powers. For military purposes a small number of these head-men sometimes united under a common leader. While bachelors' houses occur, they do not appear to correspond strictly to the Masai warriors' kraal. Age-classes, however, are rather prominent, and a formal initiation of boys and girls at the time of adolescence is indispensable. Each age-class is distinguished by certain special modes of dress or decoration; thus, permanent shaving of the head is a mark of old womanhood. The Kikuyu are skilled iron-workers. The ore is secured from a single quarry, where granite rock is broken down by a stream artificially turned from its natural course so as to yield the ferriferous sand. The presence of a single type of bellows—the triangular form of sewed goat skins—is interesting because the Masai also possess the second African form, a block of wood with skin-covered bowl-like depressions.

**BUSHMEN.** Dr. Pösch's studies of the remnants of the Bushmen race establish certain differences between the Bushmen of the Kalahari and their kinsmen in the Cape Colony. The former are more or less mixed with Hottentots and negroes, and their phonetics are distinguished by but four clicks, while the Cape Colony Bushmen speak dialects with six clicks, and differ culturally in the use of feathered arrows and the manufacture of pottery.

#### ASIA AND OCEANIA

**ASIA. PRIMITIVE METALLURGY.** The interesting question of the origin of iron-work has been resumed by Belck. Inasmuch as the accidental and occasional production of iron objects is relatively unimportant for the history of civilization, and because wrought-iron seems to be for many purposes too soft and too flexible to have supplanted the bronze implements of antiquity, Belck reduces the problem essentially to that of the origin of intentional *steel*-manufacture. This, he argues, must be referred to the scriptural Philistines, who imported the technique (which had probably been developed in Crete) into Palestine between the 14th and 13th centuries B. C. Belck is, however, inclined to regard China as a second independent centre for the development of iron-work. On the other hand, he does not assent to von Luschan's theory that African negroes originated the technique. He finds no proof whatever of the contention that these tribes practised metallurgy four or five thousand years ago; the dark-skinned human beings represented on Egyptian monuments as carrying bluish weapons may be meant for the dark-skinned natives of western Arabia and a part of the Sinai Peninsula rather than for negroes, and the blue color may represent certain varieties of bronze rather than iron; but even if von Luschan's contentions were correct, it would not follow that the bearers of iron implements had themselves manufactured the objects they carried.

**SAKAI AND MALAYS.** In eastern and central Sumatra, Moskowsky has studied the Sakai and Malay natives. The Sumatran Sakai seem to him related to the Sakai of the Malay Peninsula and the Veddahs of Ceylon. Somatologically he considers them as intermediate between *Homo primigenius* and modern man; but linguistically and culturally they have become completely assimilated with their Malay neighbors.

**OCEANIA.** A suggestive discussion by von den Steinen of the New Zealand ornaments known as *heitiki* is of considerable interest for the student of comparative art. The *heitiki* are small nephrite carvings of an oddly distorted human figure, which the natives wear on the breast suspended by a neckstring, depositing them with the dead at the first interment and restoring them to the nearest relative at the final burial ceremony. Von den Steinen suggests that these ornaments originated from nephrite adze blades, which were first perforated for use as pendants and at a later stage carved with the figure commonly elaborated by the New Zealanders on house-posts, war-canoes, weapons and implements. The curious inclination of the head to one side and other anomalies in the carving of the *heitiki* thus become intelligible as due to the limitations of the decorative field furnished by the adze blade.

In the Bismarck Archipelago and the Solomon Islands, Dr. Thurnwald has discovered two sub-racial types, which he distinguishes as Solomonians and Mountain Dwellers respectively. The latter, like the Baining of New Britain and certain tribes in the Admiralty Islands, speak a non-Melanesian language. Thurnwald's report is especially interesting with regard to the much-mooted question of totemism. The Solomon Islanders of Buin are divided into exogamous groups named for certain birds. These totems are not considered as ancestors, but as in some way associated with the several clans. Descent of the name is in the maternal line. Totems are not only never killed by the totemites, but it becomes the clansmen's duty to avenge their death; accordingly, all the totem birds are spared throughout Buin as none of the members wish to incur the wrath of their fellow-tribesmen. In Choiseul no such divisions occur; exogamy is of a local character, and seems to be less stringent. Thurnwald has also been able to supplement Parkinson's information with regard to the secret "Ingnet" society of the Gazelle Peninsula. All members are forbidden to eat certain animals, among which are the pig and several species of snake. Each novice receives at his initiation a stone fashioned into the shape of a man or animal. Each of these stones bears a distinctive name, which is shared by its owner. There is a mysterious connection between the stone and its owner; breakage of the former will cause the man's death. Other sacred objects acquired by the Ingnet members are wooden or earthen symbols of the spirits, which are used in magical practices; to secure their aid it is necessary to purchase their magical powers from the owner.

The most important contribution to Oceanian ethnography is Seligmann's *The Melanesians of British New Guinea*. In the area dealt with, the author recognizes two racial types: (1) the relatively tall, dark-skinned, frizzy-haired "Papuan" natives of the Torres Straits, the Fly River, and adjoining regions; (2) the smaller, lighter-colored "Papuo-Melanesians" ranging from Cape Possession to the extremities of the

British territory towards the east. The Papuan is more generally dolichocephalic, his head is higher, and there are prominent brow-ridges. The Papuo-Melanesian has a smaller nose; like the Papuan he is generally distinguished by frizzy hair, but curly and wavy hair is also occasionally found. The Papuo-Melanesians are again sub-divided into a western and an eastern (Massim) group, of which the former is distinguished by a large admixture of Papuan blood and by the number of mutually unrelated Papuan languages spoken by many of the tribes. With regard to all the Papuo-Melanesians, Seligmann agrees with Haddon that their presence is due to an immigration of Melanesians into the island. The clearest cultural difference from the Papuans seems to be the lack of the rigid seclusion ceremonies for adolescent boys. The most characteristic positive trait of the Massim people is a peculiar totem system with matrilineal descent. The members of each clan have not a single totem, but a series of totems, each representing a different class of the animal kingdom, though the bird totem is most prominent. Exogamy is strictly observed and formerly extended to the father's totem group. The relation of the group to their totems was not a distinctly religious one, more regard being commonly shown to the birds distinctive of one's father's clan. Carvings of totems on houses, canoe prows, and lime spatulæ show a noteworthy connection between totemism and art. A peculiar trait is the horror of dead people not belonging to a person's clan, the feeling being emphasized in the case of one's father. The manufacture of large built-up canoes is very distinctive of the Massim District, as is the absence of bows and stone-headed clubs, spears and swords of hard wood being the common weapons. The western Papuo-Melanesians are less uniform than the Massim tribes. Clans occur throughout with paternal descent, and except among the Motu exogamy prevails. Ceremonial structures called *dubu*, which serve as club-houses and council chambers, are very characteristic of this area. In some places they are merely open platforms supported by carved pillars, while in other places they are steeple-topped houses where skull trophies are stored. Wood-carving is the principal form of art industry throughout the region. Seligmann concurs with Haddon in the conviction that the geometrical motives used for decorative purposes originated from naturalistic representations by a process of conventionalization, though this thesis is more clearly established for the Massim District than for the remaining portion of the Papuo-Melanesian territory.

**SOCIETIES AND EXPEDITIONS.** A Congress of Americanists took place in September in the City of Mexico. It was followed by the establishment of an International School of American Archaeology in that city, at which scholars from the United States and Europe have been invited to give courses. Among the first lecturers chosen are Professor Seler of Berlin and Professor Boas of New York. The annual meeting of the American Anthropological Association was held during Christmas week in Providence R. I. The following officers were elected for the coming year: President, J. W. Fewkes; Vice Presidents, Alice C. Fletcher, R. B. Dixon, George B. Gordon, George A. Dorsey; Secretary, George G. MacCurdy; Treasurer, B. T. B. Hyde; Editor

John R. Swanton; Associate Editor, Paul Radin. The American Folk-Lore Society, which met in conjunction with the American Anthropological Association, re-elected the officers of the past year. The American Ethnological Society and the Anthropological Society of Washington have held their meetings in the customary way throughout the year.

The Bureau of American Ethnology supported expeditions in the Southwest (Dr. Fewkes), among the Winnebago (Mr. Radin), and a linguistic survey of eastern and western Algonkin tribes by Dr. Michelson. The Southwest has also been the field of operations of the School of American Archaeology under the direction of Dr. Edgar L. Hewitt, and of the American Museum of Natural History (Drs. Goddard and Spinden). The last-mentioned institution also equipped an expedition to the Crow and Village Indians (Dr. Lowie) and two trips by Mr. Alanson Skinner, one to the Menomini and Winnebago, and the other to the Seminole of Florida. The Field Columbian Museum continued to support Dr. Lewis's investigations in the South Seas and Mr. Cole's researches in the Philippines. Dr. Edward Sapir has been appointed ethnologist of the Geological Survey of Canada, and has paid a preliminary visit to the Nootka of British Columbia. Professor Marshall H. Saville has again visited Ecuador to resume his archaeological explorations as part of the George G. Heye expedition to that region.

**ANTIGUA.** A West Indian island, forming, with Barbuda and Redonda, a presidency of the Leeward Islands (q. v.). It is the seat of government of the colony. Area of Antigua, 108 square miles; of Barbuda and Redonda, 82½. Population (1901) (Antigua, 34,178; Barbuda, 775; Redonda, 120), 35,073. Capital, St. John, with 9262 inhabitants. Births (1908), 1250 (illegitimate, 1873); deaths, 1079; marriages, 165. Primary schools, 30, with 7384 pupils. Cultivated area, 18,475 acres; under sugar-cane, 15,977; cotton, 800. Sugar exported in 1908, 12,516 tons; cotton, 178,100 lbs. Imports, £179,532 (Great Britain, £71,671; British colonies, £30,889; other countries, £73,027; internal trade, £3945). Exports, £183,075 (Great Britain, £20,745; British colonies, £145,637; other countries, £12,724; internal trade, £3969). Tonnage entered and cleared, 722,862. There are 16½ miles of private railways; 200 of good roads. Post-offices, 12. Revenue for the year 1908-9, £51,502; expenditure, £49,964. Public debt, £135,140. St. John is the residence of the governor of the colony (1910, Sir Ernest Bickham Sweet-Escott).

**ANTIMONY.** There was no production of antimony ore in the United States during 1909. There was, however, a considerable quantity of antimonial lead produced as a by-product in the smelting of other metals and in the refining of pig lead by the electrolytic process. Besides the production of antimonial lead, a large quantity of antimony was recovered from various wastes, such as drosses, residues, old type, etc. The total production in 1909 was 1617 short tons, valued at \$252,252.

The imports of antimony and antimony compounds entered for consumption during 1909 amounted to 9,957,956 pounds. This included antimony metal and regulus.

According to the *Engineering and Mining Journal* there was no antimony ore smelted in

the United States, and no production of antimony ore in 1910 except in small lots for sample purposes. According to this authority there is only one manufactory of antimony oxide in the United States. This is at Elyria, Ohio, and operates on Chinese regulus. The oxide has a limited use as a substitute for tin oxide in ceramic and enamel work, selling for 8 cents a pound.

**ANTI-SALOON LEAGUE.** An organization founded in 1893 as the Anti-Saloon League of the District of Columbia, for the purpose of spreading Prohibition sentiment throughout the United States. From this body developed the national organization, which was founded in Washington in 1895, mainly through the efforts of Bishop Wilson of the Methodist Episcopal Church. The purpose of the League is the federation of churches of every name with temperance societies and other organizations opposed to the liquor traffic, and the concentration of these forces against the common enemy. It has no affiliation with political parties and works independently. The work of the League in 1910 will be found noted in the article PROHIBITION. Its official organ is *The American Issue*, published by Ernest H. Cherrington at Westerville, Ohio. It also publishes the *Anti-Saloon League Year Book* annually. The president in 1910 was Luther B. Wilson, and the vice-presidents, representing the different denominations, were as follows: Bishop G. M. Matthews, Rev. Father James M. Cleary, Rev. David J. Burrell, D.D., Rev. F. D. Power, D.D., Rev. W. B. Crumpton, D.D., Judge Charles A. Pollock, Rev. Washington Gladden, D.D., Rev. William L. McEwan, D.D., Rev. J. C. Barr, D.D., Bishop H. C. Morrison, Bishop Samuel P. Spreng.

**ANTITOXIN.** The value of antitoxin is so thoroughly established that its administration is now a routine procedure in diphtheria. Other uses have been discovered for it. Ricard and Micleon cured cases of severe hemorrhage in hemophiliacs by the injection of antitoxin. The remedy was also used locally in dressing bleeding wounds. It appears that antitoxin acts in a similar way to normal human blood serum in these idiopathic hemorrhages and supplies the clotting principle to the serum of "bleeders." See SERUM THERAPY.

**ANTI-VIVISECTION.** See VIVISECTION.

**APPALACHIAN EXPOSITION.** See EXPOSITIONS.

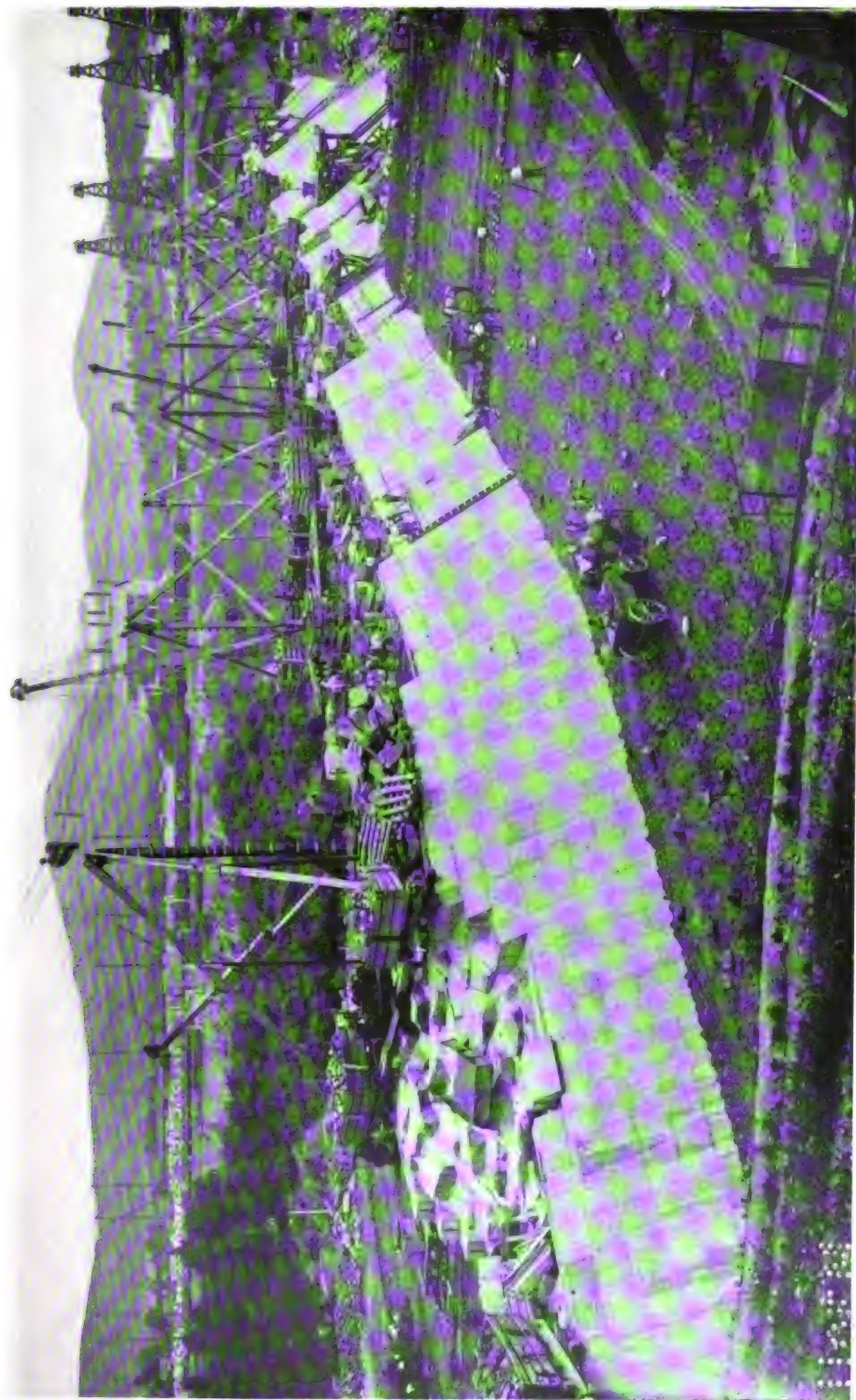
**APPLES.** See HORTICULTURE.

**APPROPRIATIONS.** CONGRESSIONAL. See UNITED STATES, section Congress.

**APRICOTS.** See HORTICULTURE.

**AQUEDUCTS.** Important engineering works to supply water to the cities of New York, Los Angeles, Vienna, Manchester, and Liverpool were under construction during 1910 and are described below. Under WATER SUPPLY, etc., will be found discussed various methods of distribution and maintenance and other questions involved in this phase of municipal engineering.

**CATSKILL AQUEDUCT AND NEW YORK CITY.** The year 1910 witnessed further progress on this great undertaking and as the completion of the aqueduct proper may be considered to be reasonably in sight at the end of the year, an outline account of the entire scheme will be given here. The waters of Esopus Creek are to be impounded by the construction of dams that will form a lake 12 miles long and 3 miles wide at the broadest part, containing 130,000,000,000 gallons.



NEW YORK CITY WATER SUPPLY  
MASONRY PORTION OF OLIVE BRIDGE DAM, ASHOKAN RESERVOIR, CATSKILLS

34

From this Ashokan reservoir about 90 miles north of New York City and 9 miles west of the Hudson, the aqueduct is being built in a southerly direction, about 40 miles to the north side of Storm King Mountain; thence in a pressure tunnel under the river to Breakneck Mountain on the east side of the river; thence southerly 40 odd miles to Hill View reservoir, 92 miles from Ashokan. Hill View reservoir is situated 2 miles southeast of Yonkers and one-half mile north of the New York City boundary line. To follow the course outlined above, two large streams must be crossed before the gorge of the Hudson is reached, and beyond that, the mountains interpose barriers requiring several miles of tunnels, in addition to which the line must pass under Croton Lake and the city of Yonkers. Enormous and costly as the undertaking seems, it is justified by the constantly growing needs of New York, and it has been planned with the idea of supplying five hundred million (500,000,000) gallons a day uninterruptedly, regardless of drought or a series of dry years.

There are four characteristic, distinctive types of construction: cut-and-cover, that is, a concrete tunnel built in an excavated trench and covered with rock or earth; grade tunnel, bored through mountains and hills as the name implies, at the same grade or level as the adjacent aqueduct; steel pipe siphon, used to cross narrow valleys where the rock is not sufficiently solid to permit a deep conduit; and pressure tunnel, for carrying the aqueduct under the bed of large streams, rivers, lakes, or any other natural obstacle. Wherever possible, the cut-and-cover form has been used, and when completed there will be 55 miles of this, built of concrete, approximately horse-shoe shape in section, 17 feet 6 inches wide and 17 feet high inside. The exterior is covered with rock and earth and graded to a uniform slope. Of this kind of work, about two-thirds are finished.

*The Grade Tunnels* are numerous, 24 in all, and when finished they will make up 14 miles of the length of the aqueduct. They have somewhat the same section as the first type, 13 feet 4 inches by 17 feet high. The principal tunnels of the line are the Bontisou, through the Shawangunk range, and Moodna, aggregating 9.2 miles, west of the Hudson; while on the east side of the river the longest are Bull Hill, Garrison, Millwood, and Sarles. From 65 to 70 per cent. of these tunnels are bored through, if not finished.

*The Steel Pipe Siphon* has been used in several localities where the aqueduct must be carried under a valley or other barrier, yet where it was impossible to find sufficiently solid rock to allow tunneling. The pipes are made of  $\frac{3}{4}$  inch steel, riveted, lined with concrete 2 inches thick and are from 9 feet to 11 feet inside diameter. Externally, this type of construction is given additional support by a heavy layer of concrete. In order to carry the full capacity of water, three siphons will be placed side by side. There will be at least ten of these.

*Pressure Tunnels*, of which there are seven, are driven through rock at great depth and lined with concrete. They are 14 feet 6 inches diameter in the clear, and connect at each end with a vertical shaft in the adjoining section of the aqueduct. These tunnels are the Rondout, Wallkill, Moodna, Hudson, Breakneck, Croton Lake, and Yonkers, passing under streams and rivers as indicated by the names. The deepest of

these will be that under the Hudson, work on which was not fairly begun in 1910 owing to the delay caused by the difficulty of finding solid rock. A most careful series of borings was made to ascertain the depth at which solid rock might be found below the bed of the river; and it was not until the closing days of the year that it was announced by the engineers in charge of the work that the rock was found to be solid at a depth of 1100 feet below the water level at mean tide. This tunnel, then, will be 3000 feet long, and the assurance of its construction removes the last natural obstacle of any account on the route. The entire length of pressure tunnels on the work will be 17 miles.

At a point less than 30 miles from the city there will be a storage basin of 40,000,000,000 gallons, known as Kensico reservoir, that can be used in emergencies such as interruptions of the supply from Ashokan in the Catskills. About 15 miles farther south the aqueduct terminates in Hill View reservoir, referred to at the beginning of this article. It is of smaller capacity than Kensico, holding only 900,000,000 gallons, and is an equalizing reservoir, supplying the city mains as needed while keeping the flow through the main conduit above it more nearly constant. On the whole length of 92 miles, contracts aggregating more than \$71,000,000 were being worked in 1910, and on the 31st day of December were reported to be 40 per cent. completed. Plans for the pressure tunnel under Manhattan were officially approved in 1910, and it was expected that bids would be called for and contracts let at an early date in 1911. Owing to the difficulties of carrying on deep tunneling work in the midst of city traffic, the date of the ultimate use of Catskill water was a matter of uncertainty.

**LOS ANGELES AQUEDUCT.** Progress on the great Los Angeles aqueduct was rapid during 1910, and William Mulholland, chief engineer, reported that on December 31, 1910, of the 215.48 miles of aqueduct, 121.31 miles had been excavated, of which all but about 24 miles was then ready for use. Actual construction of conduit did not begin until October of 1908, so that the rate of progress can be appreciated. In point of distance the aqueduct at the end of the year was 56.21 per cent. excavated, and in point of expenditure about 79 per cent. completed. With the exception of 4.23 miles of tunnel still to be bored, the remaining distance was straight-away ditch construction which was being accomplished rapidly with steam and electric shovels. For the year 1910 the excavation amounted to 62.13 miles. If this rate of speed can be maintained, the completion of the aqueduct in the summer of 1912, or more than a year in advance of the engineering estimates, seemed an assured fact.

Estimates of cost of aqueduct construction called for an expenditure of \$24,500,000. These estimates were made by a Consulting Board of Engineers who brought in a report on the project December 26, 1906. At the end of 1910 it was found that the final costs would not exceed this amount and judging from the cost of the work then completed, would be somewhat less. With the exception of 10 miles of easy construction in the Antelope Valley, all the work was being done by day labor under the direction of the city's engineers. The amount \$24,500,000 did not provide for the hydro-electric development which was being undertaken under a sepa-

rate bond issue of \$3,500,000 voted in April, 1910, for that purpose.

Primarily the aqueduct was designed and was being built for the domestic water supply of Los Angeles, but the possibilities of electric power, 90,000 kilowatts of which were found available by proper development, made this phase of the project the most important from a financial standpoint.

**MANCHESTER AQUEDUCT.** In addition to that for New York, N. Y., and for Los Angeles, Cal., there were water-supply works in other parts of the world completed or nearly so that merit some attention. Thirlmere, a lake in the north-western part of England, that has supplied the city of Manchester with water for some years, is to be drawn upon to a still greater extent. A 7-foot diameter pipe-line is being constructed, which, when completed, will increase the supply to the city fifty per cent., and it is expected will be available in about two years. This aqueduct is about 85 miles in length.

**LIVERPOOL AQUEDUCT.** The works at Vyrnwy Lake in Wales, for the water supply of Liverpool, and which have been under construction for twenty years, furnishing an increasing quantity as the work progressed, are now finished, and about 65 million gallons a day are available.

**VIENNA AQUEDUCT.** In Austria, a new aqueduct that will supply Vienna with 44 million gallons a day will be finished in a few months. It will bring water from the Styrian Salza, a distance of 102 miles, and is also notable because a large portion of the water-shed is at an elevation of 7000 feet above sea-level. On one portion of the route there is a tunnel 3 miles long, and in another locality the aqueduct had to be carried on a structure 800 feet long and 75 feet high across a valley. There have been used for the undertaking, all told, 140,000 tons of concrete, 33,500 tons of cast iron main, and 2600 tons of cast iron pipe. See also WATER SUPPLY, WATER PURIFICATION, etc.

**ARABIA.** See EXPLORATION, paragraphs on Asia.

**ARBITRAL JUSTICE, COURT OF.** See ARBITRATION, INTERNATIONAL.

**ARBITRATION AND CONCILIATION, INDUSTRIAL. UNITED STATES.** The year 1910 was notable above all others of the decade for the wide-spread uneasiness among the workers. The fundamental cause of this was doubtless the continued rapid increase in the cost of living together with a moderate revival of business prosperity after the depression of 1908. While strikes were also more numerous, there is little doubt that more important labor disputes were settled without resort to industrial war than ever before. Even in many cases where strikes were begun, the trouble was quickly settled by conciliatory intervention before employers, employees or the public had suffered any severe loss. From the view point of the public the most notable instance of the value of conciliatory methods was the settlement of many disputes between the railway companies and their employees. The strike of the switchmen of the northwest was settled under the Erdman Act, in April. The decision, which was a compromise, slightly increased the wages of nearly 8000 men. About the same time, by resort to the provisions of the same Act, the members of the Brotherhood of Locomotive Firemen and Enginemen, numbering 27,000, employed on seventy-one western roads with a total mileage of 190,000,

secured an advance of 12½ per cent. in wages. On December 24, likewise under the mediation of the Commissioner of Labor and the Chairman of the Interstate Commerce Commission, 33,000 engineers belonging to the Brotherhood of Locomotive Engineers, and employed on sixty-one railroads centering at Chicago received an increase of ten and one-third per cent. in their wage scale. This was an average of about \$192 for each man, or a total of \$3,899,000 annually. These are only larger instances of the many which serve to show that the Erdman Act of 1898 is the most important piece of legislation yet enacted in the United States on this subject.

**MOVEMENT FOR COMPULSORY ARBITRATION.** The feeling, however, continues to develop that some plan more compulsory in nature should be provided, especially for public utilities. In Ohio the reign of terror attending the Columbus street-car strike (see STRIKES) led to a demand for compulsory arbitration; but this was found to be prohibited by the State constitution. At Los Angeles also a long trade war leading to plans for a vigilance committee resulted in demands for compulsory arbitration. In various States considerable favor for the plan embodied in the Canadian Industrial Disputes Investigation Act of 1907 was expressed. In California, Special Labor Commissioner Weinstock, after careful investigation of the methods employed in various countries, submitted an exhaustive report in which the Canadian plan was favored. Mr. Weinstock drew the conclusion that a thoroughgoing compulsory arbitration act would be obnoxious to American opinion; but that, with the increasing power of public opinion, the methods of public investigation with complete publicity of all conditions surrounding a dispute would be very effective. The Sub-Committee on Wages and Labor of the Commission on Congestion of Population, appointed by Mayor Gaynor in New York City, held many hearings on this subject and made extensive inquiry. As a result it drew up a plan based on the Canadian Act. This plan provided for an Arbitration Board to be composed of members selected by the employers' associations, by the labor unions, and by disinterested citizens appointed by the Mayor. This Board would have jurisdiction of wages, hours, materials, trade customs, and trade agreements. A bill based on the Canadian Act was presented in the Massachusetts Legislature. It was vigorously opposed by trade unions because they claimed the right to strike suddenly to be essential to their success. The Canadian unions had similarly opposed their law in 1907, but they approved it in 1910.

**RESULTS OF ARBITRATION IN NEW YORK CITY.** One of the most striking instances of the value of arbitration of trade disputes was shown by a summary of the first six years' experience under the plan of arbitration in the building trades in New York City. The agreement supporting this plan is adhered to by thirty-three employers' associations and thirty trade unions. Each of these sends two representatives to a General Arbitration Board. Disputes were forwarded to the secretary and were first handled by the executive committee of twelve, six representing each side; then by the special trade boards established by any employers' association and union; and finally, if necessary, by the general board itself. In six years, 2379

grievances were presented by the unions; of these 1621 were decided favorably to them; 24 were compromised; 494 were decided adversely; 43 were referred to trade boards; and 197 were abandoned. Of 274 grievances presented by employers 191 were decided favorably to them; 43 adversely; 7 were referred to trade boards; and 33 were abandoned. (For bricklayers' strike see STRIKES AND LOCKOUTS.) A summary of existing laws in the United States and elsewhere, and of the various means of avoiding trade wars, is given in *The Annals of the American Academy of Political and Social Science* for July.

**CANADA.** A summary of the results achieved under the Industrial Disputes Investigation Act of 1907 showed that, during the twenty-five years preceding, 97 per cent. of trade disputes had been settled by strikes or lockouts and only three per cent. by conciliation, while during the years since its enactment these percentages have been exactly reversed. During the second year of the law (1909) its resources were used twenty-five times, a satisfactory adjustment being made in twenty-four cases. In 1910 the law was subjected to its severest test by the dispute between the Grand Trunk Pacific Railway Company and its organized employees. The award of the investigation board, made on June 22, was nominally accepted by the company, but in its interpretation of the award the company stretched the terms "forthwith" and "immediate" to mean not earlier than January, 1913. The men then went out on strike (see STRIKES AND LOCKOUTS). This strike, lasting fourteen days, was ended largely through the intervention of the Minister of Labor on terms almost exactly equal to those set down in the award. While, therefore, the methods provided in the Act failed to prevent the strike, the speedy termination of the latter was primarily due to public recognition of the fairness of the award and public resentment at the stubbornness of the company.

**GREAT BRITAIN.** British employers and trade unions have slowly evolved a system of provisions for the peaceful settlement of disputes without much governmental interference. In September there were 262 conciliation and arbitration boards in existence, affecting more than 2,000,000 employees. Most of these provide for joint conferences of representatives of both sides. *Deadlocks* are avoided in more than one-half of these boards by reference to (1) an arbitrator appointed by the Board of Trade, (2) a permanent neutral chairman, (3) an arbitrator or umpire appointed for each special case, or (4) three arbitrators with authoritative decision by a majority. Moreover, many of the 1696 trade agreements, affecting 2,400,000 workers, favor conciliatory methods in settling differences, and provide penalties for sudden strikes or lockouts.

**FRANCE.** Immediately following the settlement of the spectacular strike of the railway employees which threatened great disaster to all lines of public activity, the government began the formulation of a measure to prevent strikes by the employees of public service corporations. On December 22, the text of the government measure was made public. It provided for the formation of a conciliation commission; if this should fail, compulsory arbitration is required. In case the settlement imposed undue expense upon the employing company it

is authorized to reimburse itself by higher charges or other means. The report accompanying the bill pointed out that strikes on public service utilities are crimes against society as now constituted and emphasized the evils of strikes in general. It declared that some means, however, must be provided whereby employees may secure an amelioration of their condition. Such means were found in arbitration and conciliation. The report also contained a review of the methods of arbitration and conciliation in different countries.

**NEW ZEALAND.** For thirteen years New Zealand was free from strikes; then in 1907 and 1908 it had four. These led to the new law of October, 1908, creating Councils of Conciliation in the various industrial districts, with final appeal to the Court of Arbitration. These Councils and the Court may prescribe minimum wages, give preference to trade unions, and make their awards applicable to all similar trades in a district, or even in the entire country. Reasons advanced for the success of the principle of compulsory arbitration in preventing strikes are that the decisions have been almost uniformly favorable to the unions; that the country has been prosperous; that population increases slowly and there has been no redundancy of labor; and that the plan of fostering trade unions has helped by centering labor class responsibility upon them, while at the same time opening them to all possible members and making their funds liable in case of strike. A report of the New Zealand Employers' Association in October declared that the demands of the unions were becoming more and more extreme and that there were indications that the stronger unions were adopting aggressive attitudes that would lead to the old order of trade disputes.

**ARBITRATION, INTERNATIONAL.** **THE FISHERIES AWARD.** The cause of international arbitration has been greatly strengthened during the year 1910 because of the successful termination before The Hague of the difficult and complicated century-long dispute between the United States and Great Britain concerning the North Atlantic Fisheries, and the prompt acceptance of the decision by the parties contestant. In fact, the case was unique because both parties to it were satisfied with the award. Counting the judges, senior and junior counsel, attorneys, secretaries, clerks and assistants of every grade, thirty-five persons were concerned in the case. The judges were five in number. The president of the tribunal was Dr. Heinrich Lammasch, an eminent Austrian publicist, who holds a professorship in the University of Vienna and is a member of the upper house of the Austrian Parliament. He bears no title, but was designated in the official record simply as Mr. Lammasch. Next in order of precedence in the protocol or bulletin of the proceedings came His Excellency, A. F. de Savornin Lohman, former Minister of State of the Netherlands and member of the second legislative chamber in that country. The third arbitrator was the Hon. George Gray, of Delaware, of the United States Circuit Court of Appeals. Canada was represented on the tribunal by Sir Charles Fitzpatrick, the Chief Justice of the Dominion Supreme Court. The fifth judge was Luis Maria Drago, formerly Minister of Foreign Affairs in the Argentine Republic, probably the most distinguished jurist that South America has so

far produced. The leading counsel on the American side was Senator Elihu Root, of New York, formerly Secretary of State. The leading counsel for Great Britain was Sir William S. Robson, the Attorney-General of England. An immense amount of documentary evidence was submitted.

Many of the documents antedated the American Revolution, and some of them went as far back as the seventeenth century. The adequate analysis, discussion, and consideration of them involved the exercise of the most painstaking industry and the highest legal and judicial ability.

Although the proceeding was officially designated an arbitration, it was really a stupendous lawsuit between nations, and its determination was controlled by the recognized rules of international and municipal law as applied to the facts found by the arbitrators, regardless of all considerations of diplomatic expediency. In the decision which the Court handed down, two points maintained by Great Britain were upheld, and five of those claimed by the United States. The seven questions arising out of the application of the Anglo-American Treaty of 1818 were:

First: Must any reasonable regulations made by Great Britain, Canada and Newfoundland in the form of municipal laws, ordinances, or rules (such regulations being appropriate or necessary for the preservation of the fisheries, desirable on grounds of public order and morals, equitable and fair as between local fishermen and inhabitants of the United States), be subject to the consent of the United States?

Second: Have the inhabitants of the United States, while exercising the liberty to take fish on the treaty coasts, a right to employ as members of their fishing crews persons not inhabitants of the United States?

Third: Can the liberties to take, dry and cure fish in treaty-designated places be subjected, without the consent of the United States, to the requirements of entry or report at customs houses or the payment of dues, or any similar conditions?

Fourth: Can restrictions be imposed upon American fishermen, making the exercise of the privileges granted them by the treaty to enter certain bays or harbors for shelter, repairs, wood, and water conditional upon the payment of light or harbor or other dues on entering or reporting at customs houses, or any similar conditions?

Fifth: What is a bay within the treaty's meaning?

Sixth: Does the treaty give the inhabitants of the United States the same liberty to take fish in the bays, harbors and creeks in Newfoundland as in Labrador?

Seventh: Are the inhabitants of the United States whose vessels resort to the treaty coasts to exercise the liberties referred to in Article I of the treaty entitled to have for those vessels, when duly authorized by the United States in that behalf, the commercial privileges on the treaty coasts accorded by agreement or otherwise to United States trading vessels generally?

The first and fifth questions were decided contrary to the claims of the United States. The award in favor of Great Britain on the first question, involving a seeming cession of sovereignty, was generally considered by many competent observers as the most important of

all. The other point decided in favor of Great Britain concerns the "headland doctrine," wherein the British contended that the three marine miles within which the United States had agreed not to take fish should be measured from an imaginary line drawn across the mouth of the bay, no matter how wide, from headland to headland. On the other hand, America contended that the line should follow the coast's sinuosities. Dr. Drago dissented from the majority judgment on this point and upheld the American contention.

On the other points the United States won. Hereafter the British cannot make our fishermen report to customs houses; they cannot impose on these fishermen light, harbor, or other dues; we may employ Newfoundlanders on our fishing vessels, and these vessels have the right to purchase supplies and to enjoy other commercial privileges. Moreover, the award provides that disputed fishing regulations shall be submitted to an impartial commission, composed of one expert from each country and Dr. Paulus Hoek, the Fisheries Adviser to the Dutch Government, and recommends that a similar commission be made permanent.

ORINOCO CLAIMS CASE. What has been known as the "Orinoco Claims Case" was decided September 20, three months after the Fisheries Case. The facts are as follows: The Orinoco Steamship Company, a company operating under a New Jersey charter, brought an action for damages against the Venezuela government for the repudiation by President Castro of an agreement giving the company certain exclusive privileges in that country. Damages to the extent of \$1,400,000 were claimed. The case was submitted to Dr. Charles Barge as umpire, who on February 22, 1904, awarded the company \$28,700. The company appealed to the United States government, which rejected the award on the ground that it was in violation of the principles of international law. After prolonged negotiations, Venezuela was finally induced by the late William I. Buchanan, who was sent as a special envoy to Caracas, to allow the whole matter to go to The Hague Court. The American government, represented by William C. Dennis, Assistant Solicitor of the Department, held that the Barge award was in many ways erroneous and unjust, and ought therefore to be declared null and void. On four points the Barge award was declared null. The Steamship Company was awarded \$46,867, with three per cent. interest since June 6, 1903, and \$7000 costs, to be paid by Venezuela in two months. Although the award was small and some of the American points were not sustained, the American representatives considered the decision a vindication of the American government's position in the matter. This case is regarded as especially interesting from the fact that it practically establishes The Hague Tribunal as a court of appeal, even though appeal to it, as in this instance, was by agreement of the parties.

BRAZIL AND BOLIVIA. An arbitral award between Brazil and Bolivia was published early in 1910. Some five years ago blood was shed in the zone contested by the two countries and war was at one moment feared. The matter was submitted to arbitration by the Treaty of Petropolis, November 17, 1903. The labors of the tribunal appointed under the treaty were suspended from May 20, 1906, to February 6,

1907, but by a protocol of that date it was decided to recommence those labors, the Apostolic Nuncio to Brazil being appointed President of the Tribunal, assisted by a Peruvian and a Brazilian delegate. The award finally made was sympathetically received by both nations.

**SWITZERLAND AND ITALY.** A dispute arose several years ago between Switzerland and Italy with regard to the deduction of 6 per cent. customs duty on wines imported from Italy. The latter wished to derive a profit other than that established by usage. She began in 1893, on the occasion of the renewal of the treaty, by prolonging for a month, from November 30 to December 31, the date when wines could be imported on the old conditions. Finally, in the last treaty, she modified the text specifying the conditions on which the Italian wine growers maintained they were now exporting their wines to Switzerland. The Swiss Fiscal Department was opposed to this interpretation, whence resulted a dispute which was tried by an arbitration tribunal consisting of two members, one an Italian, one a Swiss, and an umpire.

**THE ALSOP AND EMERY CASES.** There are pending two American arbitrations of considerable interest: The *Alsop case* had its immediate origin in the contract between one John Wheelwright, representing Alsop and Company (an association of American citizens doing business under the laws of Chile) and the government of Bolivia, by which Bolivia became obligated to pay sums aggregating 835,000 bolivianos, with interest at five per cent., and 270,000 bolivianos with accrued interest. The United States has contended for a great many years that Chile had become obligated to pay the full amount of this sum, and while Chile has admitted some liability, it contended that the liability was limited. The two governments not being able to agree upon this question of the liability of Chile, under all the circumstances of the case they agreed in a protocol signed at Santiago on December 1, 1909, to submit the whole matter to King Edward VII, as *amiable compositeur* to determine the extent of Chile's liability in this case.

The Emery case arose from the "clauidication" of a concession to cut and export timbers from Nicaragua held by the Emery Company, an American corporation. The United States contended that the action of the Nicaraguan government was improper, and Nicaragua alleged its propriety. After several months of negotiations the Nicaraguan government agreed to submit the matter to international arbitration. For more than two years the two governments endeavored to reach an agreement as to the terms of submission. An agreement was finally reached, and a protocol of arbitration was signed at Washington in which Nicaragua reserved the right to settle the case with the claimants through the Department of State within a certain period of time named in the protocol. Before the expiration of this time a protocol of settlement was signed by the representatives of the two governments.

**RUSSIA AND TURKEY.** Another great triumph for international arbitration has been in the recent agreement of Russia and Turkey to submit to The Hague the issues between them growing out of the indemnities Turkey agreed to pay Russia at the close of their last war, thirty-three years ago. From every point of

view this agreement is of very great interest and importance. This case and the "Savakar" question between Great Britain and France, soon to be tried, constitute the ninth and tenth cases to be submitted to The Hague Court.

**SOUTH AMERICAN BOUNDARY DISPUTES.** The important boundary dispute between Bolivia and Peru, arbitrated in 1909 by the President of Argentina, resulted in bitter feeling between Bolivia and Argentina because of the former's dissatisfaction with the award. The matter has now been happily adjusted and diplomatic relations between these countries have been resumed. South America the past summer was also the scene of a great achievement in mediation—the settlement of the acute boundary dispute between Ecuador and Peru through the mediation of the Argentine Republic, Brazil and the United States.

**COURT OF ARBITRAL JUSTICE.** The recently organized American Society for the Judicial Settlement of International Disputes has for its underlying purpose the promotion of the project to establish a judicial tribunal which will do for the civilized world what the ordinary courts of justice do for the individual and to encourage recourse to it when established. Such a tribunal is foreshadowed in the Court of Arbitral Justice adopted in principle by the Second Hague Conference. It differs materially from the existing Court of Arbitration at The Hague. The latter consists practically of a panel of judges to be drawn upon when it is desired to organize a tribunal of arbitration for some specific case. Courts of arbitration, so organized, in the opinion of the new society, have certain inherent weaknesses; their members are often nationals of the contesting countries with all the prejudices appertaining thereto; it is more or less difficult to fix upon arbitrators acceptable to both sides; an arbitration is costly and the expense is borne solely by the nations parties to the dispute; the court is dissolved after settling the case before it, and such a tribunal must lack continuity. A permanent court of justice, on the other hand, would gradually establish precedents by which it would be governed and would help to build up international law precisely as municipal law is built up to-day by the decisions of the ordinary courts of justice. It would gradually acquire a wide knowledge of international practice, and in time win the respect and confidence of the world just as the Supreme Court of the United States has won the confidence of the people of the separate States of the Union. Furthermore, its very existence would be an invitation to define more clearly international law and possibly to codify portions of it. An example in point is the fact that the establishment of an International Prize Court by the Second Hague Conference (1907) led to the holding of a convention in London (1908-9) to codify the law of prize. The expense of maintaining the Court of Arbitral Justice will be borne by the nations jointly. At a conference of this society, which took place in Washington, Dr. Charles W. Eliot, arguing in behalf of the judicial settlement of international disputes by a permanent court, emphasized the objections to international arbitration, saying, in the first place that the tribunal was special and temporary and secondly that its nature was not satisfactory. He said that to trust a single umpire was obviously risky and that arbitration practically

amounted to this, for it was customary for each of the disputing nations to name an arbitrator, the two thus named selecting a third, who therefore was virtually an umpire. The compromises attained were seldom satisfactory to either disputant. These remarks called forth some criticism, as they were held to imply that arbitration had been a failure. In reply it was said that it had, on the contrary, been a conspicuous and continuous success, more than 250 important controversies having been disposed of by means of it. At the meeting of the Lake Mohonk Conference it was announced that the Secretary of State had received in response to a circular note addressed to the nations, such favorable answers that he believed "a truly permanent court of arbitral justice composed of judges acting under a sense of judicial responsibility, representing the various judicial systems of the world, capable of insuring the continuity of arbitral jurisprudence, will be established in the immediate future, and that the third Peace Conference will find it in successful operation at The Hague." This proposal of Secretary Knox for a permanent international court made steady progress toward general acceptance during the year, Italy being the last to take affirmative action (December 16, 1910).

**THE CENTRAL AMERICAN COURT OF JUSTICE.** Organized in 1908, the Central American Court of Justice has had two cases submitted to it. In the first case, it sat in *judgment upon nations*, the first event of the kind in the history of the world. Honduras was plaintiff, accusing Salvador and Guatemala of protecting and fomenting a revolution against the government. According to the provisions of the convention establishing the Court, it was able, three days after the complaint was filed, to issue an interlocutory decree fixing the *status quo* and restraining the revolutionary movement pending decision of the case. Five months after the case was begun, judgment was rendered, the complaint being dismissed for want of sufficient evidence to support the allegations of Honduras. The second case was instituted in 1909 by an individual, Dr. Pedro A. F. Diaz, a citizen of Nicaragua, against the government of Guatemala, claiming damages for alleged arbitrary imprisonment by the Guatemala authorities, business losses and permanent injuries to health. The Court dismissed the case on the ground chiefly that Diaz should first have resorted to the local courts of Guatemala, and failing to obtain justice there, should have called upon his own government to support his claim. These cases have demonstrated, in the view of the Business Men's Committee of the Lake Mohonk Conference, first, the practicability of this calm, deliberate and orderly method of settling international difficulties, for the revolutionary movement quickly subsided, being held in check by the interlocutory decree until the Court rendered its final decision, which was acquiesced in and obeyed by all parties concerned; and secondly, that an international court can be so constituted that individuals as well as nations may resort to it.

**CARNEGIE PEACE FUND.** On December 14, 1910, Andrew Carnegie transferred to twenty-seven trustees a fund of \$10,000,000, to be devoted primarily to the establishment of universal peace by the abolition of war between nations and such friction as may impair the progress and happiness of man. The trustees

named are: Elihu Root, United States Senator, New York; Nicholas Murray Butler, President Columbia University, New York; Dr. Henry S. Pritchett, President of the Carnegie Foundation for the Advancement of Teaching; Joseph H. Choate, lawyer, ex-Ambassador to Great Britain; Albert K. Smiley, Lake Mohonk, educator and humanitarian; Dr. Charles W. Eliot, President Emeritus of Harvard University; James Brown Scott, Solicitor of the State Department; John W. Foster, lawyer, of Washington, D. C., ex-Secretary of State; Andrew J. Montague, lawyer, ex-Governor of Virginia; William M. Howard, lawyer, Congressman, Lexington, Georgia; Judge Thomas Burke, Seattle, Washington; James L. Slayden, Congressman, San Antonio, Texas; Andrew D. White, ex-Ambassador to Germany; Robert S. Brookings, lawyer, St. Louis; Samuel Mather, banker, steel manufacturer, Cleveland; J. G. Schmidlapp, railroad man, Cincinnati; Arthur William Foster, Regent University of California, San Francisco; R. A. Franks, banker, Hoboken, N. J.; Charlemagne Tower, ex-Ambassador to Germany and Russia; Oscar Straus, Ambassador to Turkey; Austen G. Fox, lawyer, New York; John L. Cadwalader, lawyer, New York; John Sharp Williams, Senator-elect from Mississippi; C. L. Taylor, of Pittsburg, chairman of the Carnegie Hero Fund Commission; George W. Perkins, of New York, financier and philanthropist; Robert S. Woodward, Washington, D. C., president Carnegie Institution, of Washington, and Cleveland H. Dodge, New York, secretary Carnegie Institution.

These twenty-seven representative men, in accepting the trust, on motion of Joseph H. Choate "Resolved, That the trust fund for the promotion of peace specified in the instruments subscribed to and delivered this day by Andrew Carnegie be, and is, hereby accepted for the purposes prescribed by the donor; *Resolved*, That in undertaking to hold and use, in trust, this munificent gift for the benefit of mankind, the trustees are moved by a deep sense of the sincere and noble spirit of humanity which inspires the donor of the fund. They feel that all thoughtful men and women should be grateful to him and should be glad to aid, so far as lies within their power, towards the accomplishment of the much-to-be-desired end upon which he has fixed his hope and to which he wishes to contribute. They are not unmindful of the delicacy and difficulty involved in dealing with so great a sum for such a purpose, wisely and not mischievously, and in ways which shall be practical and effective. They accept the trust in belief that, although doubtless many mistakes may be made, great and permanent good can be accomplished."

**LAKE MOHONK CONFERENCE.** The Sixteenth Annual Mohonk Conference on International Arbitration was largely attended. Its sessions were marked by the declaration of Secretary Knox already referred to and by the presence of the Dean of Worcester. In its declaration, the Conference reaffirmed its declaration of the previous year respecting the portentous growth of the military and naval establishments of the great powers, and called renewed attention to the fact that the rapid development of the instrumentalities of law and justice for the settlement of international differences furnishes to the statesmanship of the civilized world the long-desired opportunity of limiting by agreement

the further increase of armaments. The coming celebration of the one hundredth anniversary of the arrangement between Great Britain and the United States definitely limiting the naval force on the Great Lakes and the St. Lawrence to four hundred tons and four eighteen-pounders, calls renewed attention to the continued menace to the peace of the world caused by the prevailing conditions and emphasizes the fact, so well expressed by former President Roosevelt in his Christiania address, that with "sincerity of purpose the great powers of the world should find no insurmountable difficulty in reaching an agreement which would put an end to the present costly and growing extravagance of expenditure on naval armaments."

**CONGRESS OF CHAMBERS OF COMMERCE.** The Fourth International Congress of Chambers of Commerce and Industrial Associations was held in London, June 21st to 23rd, 1910. These congresses, held every two years, bring together the business forces of the world. They assure the concerted action necessary for the further advance of the peaceful intercourse of nations. The First International Congress of Chambers of Commerce and Industrial Associations was held at Liège, Belgium, in 1905. The three days' session was devoted to commercial associations, their organism and the ways and means of securing effective international action. It resulted in the creation of a permanent Committee of Congresses of Chambers of Commerce and Industrial Associations, and the decision to hold congresses every two years. The Second Congress was held at Milan, Italy, in 1906, and the Third Congress at Prague, Austria, in 1908. At these congresses the organization was perfected, by laws were adopted, the Permanent Committee was elected and special committees were appointed. Following is a translation of some of the resolutions adopted at the London convention: Establishment of a Fixed Date for Easter; Unification and Simplification of the Gregorian Calendar.

"It is desirable to establish a fixed international calendar."

"It is desirable to establish, by international agreement, a fixed date for Easter."

"The Congress instructs the Permanent Committee to invite one of the governments to convoke a diplomatic official conference with the object of establishing a fixed date for Easter and a fixed international calendar."

Development of Postal Unions and of the European Postal Union.

Enforcement of judgments and arbitration awards pronounced in foreign countries.

a. Judgments: "The Congress is of opinion that the enforcement of judgments in foreign countries, without revision, would be facilitated by agreements between countries which have reciprocal confidence in their judicial institutions, and whose legislation rests upon similar bases."

"In consequence of the diversity of legislation, agreements between two or several countries would be more easily attained than a universal convention, or one concluded between a large number of states."

b. Arbitration Awards: "The Congress desires the Permanent Committee to institute an inquiry into the conditions under which the arbitration awards are made in different countries, and would be grateful if His Britannic Majesty's Government would take the initiative as to such inquiry."

The next Congress will be held in Boston in 1912.

**INTERPARLIAMENTARY CONFERENCE.** The Sixteenth Interparliamentary Conference held at Brussels in the Palais de la Nation, the last of August, was an unusually interesting meeting of this great organization of three thousand statesmen. The parliaments of nineteen countries were represented. There were in all seven hundred and sixty-eight members present, more than filling the Senate Chamber, including the galleries. The Conference was opened by Auguste Beernaert, the veteran Belgian statesman, former president of the Chamber of Deputies, recipient of the Nobel prize, and subsequently presided over by Mr. de Sadeleer, ex-president of the Chamber of Deputies. In his opening speech, Mr. Beernaert said that the position of the Union had been materially strengthened since various nations had contributed towards its financial support. Though the results of its work had not yet been adequate, there was, he thought, ground for real encouragement, as arbitration and mediation formed to-day an integral part of international relations, rapprochements were being established between peoples, and the universal conscience was finding its mouthpiece in The Hague Conference, in its demand for reduction of armaments and the general application of arbitration to the settlement of disputes.

**PUBLICATIONS.** During the year 1910 the American Association for International Conciliation has published the following series of leaflets, to which a large circulation has been given: *The East and the West*, by Seth Low, (1910); *The Moral Equivalent of War*, by William James, (1910); *International Unity*, by Philander C. Knox, (1910); *The United States and Australia*, by Percival R. Cole, (1910); *The United States and Germany*, by Karl von Lewinski, (1910); *The United States and Mexico*, by James Douglas, (1910); *The International Duty of the United States and Great Britain*, by Edward D. Mead, (1910); *Opening Address at the Lake Mohonk Conference on International Arbitration*, by Nicholas Murray Butler, (1910); *An Economic View of War and Arbitration*, by John B. Clark, LL. D. (1910); *Peace Versus War: The President's Solution*, by Andrew Carnegie, (1910); *Conciliation through Commerce and Industry in South America*, by Charles M. Pepper, (1910); *International Conciliation in the Far East: A Collection of Papers upon Various Topics*, by Rt. Rev. L. H. Roots, Rev. Dr. J. H. DeForest, Prof. E. D. Burton, Rev. Dr. Gilbert Reed and Hon. John W. Foster, (1910); *The Capture and Destruction of Commerce at Sea, and Taxation and Armaments*, by F. W. Hirst, (1910); *Selections from Speeches Delivered in Congress on the Naval Appropriation Bills of 1906, 1908, 1909 and 1910*, by Hon. Theodore E. Burton, (1910).

In addition to carrying on a general propaganda the International School of Peace has been publishing a series of useful pamphlets and reprinting standard works. Among them are the following: Bloch's *The Future of War*, Sumner's *Addresses on War*, Channing's *Discourses on War*, Warner's *The Ethics of Force*, Bridgman's *World Organization*, Dodge's *War Inconsistent with the Religion of Jesus Christ*, Hull's *The Two Hague Conferences*, Scott's *The Texts of the Peace Conferences at The Hague*.

**ARCHÆOLOGICAL INSTITUTE OF AMERICA.** A learned society founded in Boston in 1879 and incorporated by Act of Congress in 1906. The purpose of the Institute is to promote archæological research by founding schools and maintaining fellowships, by conducting explorations and excavations and by aiding in those conducted by others, by publishing the results of archæological research, by holding meetings for the presentation and discussion of archæological subjects and by maintaining courses of the University of Michigan, was re-elected its activities in the various fields of archæological interest, especially Greek, Roman, Oriental and Renaissance. It has also conducted researches in the United States, Mexico and Central America. It publishes the *American Journal of Archæology*, which contains original contributions, reports and summaries of archæological work in all parts of the world, and a bibliography of archæological books. Of this journal, four numbers are published annually, together with a supplement which contains the annual reports of the institutes and of the schools. The schools maintained by the Institute are the American School of Classical Studies at Athens, established in 1881; American School of Classical Studies in Rome, organized in 1895; American School for Oriental Study and Research, founded in 1900; and the School for American Archæology, founded in 1907. The Carnegie Institution of Washington supports a fellowship in archæology in the American School of Classical Studies in Athens, and grants \$1500 annually for excavations. The Institution also maintains two fellowships for research in the American School for Classical Studies in Rome, and grants \$1000 annually for publication. The Institute holds annual meetings. The meeting in 1910 was held in Providence in conjunction with the meeting of the American Philological Association. The work of the society during the year was reviewed in a number of interesting papers. Work was done in excavation in Samaria, Sardis, Crete, Cyrene, Guatemala, and Southwestern United States. A paper was read by Frank J. Mather, Jr., of Princeton University, on Italian Paintings in America. Dr. Esther B. van Deman presented an original study of the technical characteristics of Roman brick work. Another paper of unusual interest was read by William H. Goodyear of the Brooklyn Institute of Arts and Sciences, dealing with recent studies of the Leaning Tower of Pisa. The needs of the Institute for an endowment were emphasized at this meeting. The American School in Palestine is greatly in need of a building for a working library and an annual income of at least \$16,000. Other schools are also in need of endowment funds. Professor Francis W. Kelsey, of the University of Michigan, was re-elected President, and Professor Mitchell Carroll of Washington, D. C., was elected General Secretary. William Sloane, of New York City, was re-elected Treasurer. On invitation of the American Institute of Architects the Institute will take up national headquarters in the historic "Octagon" in Washington. See ARCHÆOLOGY.

**ARCHÆOLOGY.** The year 1910 was marked by two notable undertakings by Americans in the field of archæology: at Cyrene (see below) the expedition sent out by the Boston

Museum of Fine Arts has made a preliminary survey with the view to excavating on that site, while Professor Howard Crosby Butler of Princeton University has actually made considerable headway in the excavation of the site of ancient Sardis. These excavations will be considered later in this report. On most of the important sites the work of past years has been continued and some work brought to a close.

**MESOPOTAMIA.** At Assur, the ancient capital of the Assyrian Empire, the Germans have conducted excavations on the northeast corner of the mound of the great temple of the god Assur. This temple was built by one of the earliest kings of the country, Uspia. Near by the palace of Shalmaneser I. has been discovered, and the temple of Anu and Abad has been shown to have been built by Assur-resi-isi, the father of Tiglath-Pileser I., about the year 1150 B. C. The temple was afterward rebuilt by Shalmaneser II. about the year 850 B. C. Not only has the building inscription of Assur-resi-isi been recovered, but the Germans have found as well that of Tiglath-Pileser, who boasts in his annals of having restored the building.

**SYRIA AND PALESTINE.** Scholars of the same nationality, that is, the Germans, have also been at work at Jericho where the great city wall has been unearthed. The workmanship of this wall displays an exceptional degree of engineering skill in the matter of laying the large stones in place. In addition to this the remains of a fine building, which seems to have been a citadel, were uncovered. In strata of late Jewish times—dating in the Hellenistic period—the excavators discovered jar handles that bore the divine name Yah or Yahu written in Aramaic script. In the Canaanite strata were encountered numerous infant jar-burials. The date of these is afforded by the fact that in company with them was found pottery of the Mycænan and Cypriote periods. From the archæological evidence afforded by the excavations, the deduction is drawn that the account of Jericho as given in the Old Testament is far from correct. The Canaanitish walls were not found to have been overthrown to any extent, nor were there any signs of any great conflagration. It will be recalled that Joshua (vi. 24) narrates that the vessels of iron were preserved by the Israelites, whereas it is now known that the Canaanites did not make use of iron. This is shown by the fact that no iron was found in the Canaanitish levels at Jericho. In addition to this there is no evidence to confirm the statement that Jericho was not rebuilt until the time of Ahab. On the contrary the archæological evidence proves that there was a continuous occupation of the city from the earliest times.

Of great importance are the results of the Harvard University excavations which were begun in 1908. This year the excavators continued their work on all the sites touched upon in the previous year, especial emphasis being laid on the palace which is located on the summit of the hill. Although this building has not yet been completely uncovered, it can be seen to have covered more than one and one-half acres. In it four building periods have been made out, which have been assigned tentatively to the times of Omri, Ahab, Jehu, and Jeroboam II. The assignment of the original building to Omri and Ahab seems to be confirmed by the discovery of an alabaster vase

bearing the name of a contemporary of the latter king, namely, Osorkon II. of Egypt. Of exceptional interest, however, was the discovery this summer of some seventy-five potsherds inscribed with records written in the ancient Hebrew language. That these records were originally placed upon these fragments is shown by the fact that in certain cases the writing is crowded to fit the space at the disposal of the scribe, and also by the fact that several fragments bearing different inscriptions came from the same vase. The script is the Phœnician, which was widely current in antiquity, and is very different from the square characters, so called, in which the existing Hebrew manuscripts of the Bible are written. That it is practically identical with the script used in the Siloam Tunnel settles the question whether that inscription can be as early as the time of Hezekiah. Since also it is the same as that employed on the Moabite stone there is reason for placing these ostraca in the eighth or ninth century B. C. Confirmation of this is afforded by the place of discovery which would lead to assigning them to the time of Ahab. The inscriptions on the potsherds are written in ink with a pen. Except in two instances the fragments seem to be dated, the date given being the ninth and tenth years. Since they referred to wine or oil, there was no need to give any month or day; the vintage sufficed. It is of interest to note that the names of gods appear only as elements in the formation of those of men. The recurrence of the name Baal in the formation of such names is to be explained by the fact that in the Book of Kings we find it recorded that in the reign of Ahab there was a great revival of the worship of Baal in Israel. This was probably due to the fact that Ahab's queen was from Tyre, where this cult was specially in vogue. The name of Israel's god is about as frequent as that of Baal. It occurs in the form Y H W and Y H. These inscriptions are the earliest instances of Hebrew writing known, and are more numerous by far than all the other known Hebrew inscriptions. Their importance therefore can easily be appreciated.

**EGYPT.** Much important archaeological work was done in this country during 1910. At Abydos, Naville and Hall have cleared the tombs of Den and Perabsen, and among other things recovered during the excavations were mud sealings of Perabsen and Sekhemb. In addition to this these scholars found many bone pins, a crystal vase which seems to prove that Dan is not Usaphais, and, incised upon pottery, the "hawk name" of a king which may prove to be that of a ruler of the first dynasty, which has not yet been recorded. To the north of the royal tombs were discovered many objects which belong in the time reaching from the sixth to the eighth dynasties. In this locality also came to light a cemetery of common people which belongs in early times. At Assasif the tomb of Menkheper-ra-senb, who was a high priest of the time of Thothmes III., was discovered. At Karnak the restoration of the Hypostyle Hall has been completed. From the territory between this hall and the Sacred Lake has been recovered a colossal statue of Useresen I. The statue is in fine condition.

The expedition of the Metropolitan Museum of Art continued to work at the temple of Hibis in the oasis of Kharga. The task undertaken was that of clearing out the tem-

ple, and the work was carried on in conjunction with the Egyptian government. The excavation began in December, 1909, and was first concerned with clearing out the portico of Nectanebo. After this the digging continued through the great eastern doorway. Here the Hypostyle Hall was found to be in a state of great confusion because of the blocks which had fallen down, so much so that the interior of the hall was filled to the height of several metres. During the work some interesting reliefs were discovered, among which was one showing Darius, who built the temple, in a boat picking papyrus flowers to offer to the god Min. Another relief shows the god Sutekh, a popular deity of the oasis, slaying the serpent of evil. Among other objects discovered were an isolated capital with the coloring preserved, and a fragment of a bowl which was dedicated in the reign of Apries—that is, about 588-589 B. C. This bowl appears to have been used in the temple and therefore argues for a temple at this place as early as the Saite times. At present there exist two stages of the temple earlier than the reign of Nectanebo, as well as evidence for many additions and changes, before unknown, dating from Ptolemaic times.

The English continued their work at Memphis. In part this has been experimental with the view to finding how much of the site ought to be cleared exhaustively. It was shown that about twelve feet of soil would have to be removed before coming to early dynastic remains. It was moreover demonstrated that the destruction of the ancient town of Memphis by the builders of Cairo was much more extensive than had been previously supposed. The chief results obtained this year from the temple consist in the remains of a large shrine of quartz built by Amenhotep III. From this were obtained two blocks with fine figures of the king and a goddess. From a shrine of Amasis was secured a perfect portrait head of the king, which appeared in a scene on this shrine. At the palace site, which was cleared last year, it was found that the foundations were of enormous depth and that the great court of Apries, which rises about forty-five feet in height, extends in its foundations to a similar depth below the surface of the pavement. From the palace came a curious lot of sweepings from a Persian office, with Aramaic labels which came off parcels from Syria and some dozens of sealings among them. These seals are for the most part Persian and Egyptian—one showing an alliance between a king of the Black Sea and the Hittites. A perfect Persian steel sword and a massive bronze corner of a cedar door were found.

At Meydum an important tomb was discovered. Excavation disclosed a passage thirteen metres long from which opened out a cross-shaped hall nine by six metres in ground-plan. In this hall was found a red granite sarcophagus which has proved to be the oldest granite sarcophagus known. The blocks which cover the hall as a roof are of huge size, being five and one-half metres long by two and one-half broad, by one thick, and computed to weigh about forty tons. The burial chamber is five metres high. Unfortunately the sarcophagus had already been plundered when it was discovered. The date of its manufacture is about one-half century before the date of the Great Pyramid. The chamber in which it reposed, already referred to is finer than that of any known

private tomb, and even exceeds those of many of the pyramids. The plundering of the tomb has evidently been done by some one who knew how to break into the place—probably one of the workmen employed in building the tomb. Another interesting discovery was made when the east face of the pyramid at Meydum was being cleared. Here blocks of stone were found with the month of the quarrying carved upon them. Since the season of working is fixed by the inundation of the Nile, it was a simple matter to arrange the shifting months of the Egyptian calendar by seasons. As a result the dating of the third to the twelfth dynasties as given by Manetho was found to be correct. So if we rely upon this authority as much after the twelfth dynasty as before, King Sneferu is to be dated 4700 B. C. If, however, he is arbitrarily rejected as an authority then this king is dated 3200 B. C.

At Quft (ancient Coptos) were discovered a quantity of stelai giving the names of kings of the eighth dynasty, hitherto supposed to have held merely nominal sovereignty to the south of the delta of the Nile. In the Valley of the Tombs of the Kings, Davis and Jones have opened several tombs, but they were for the most part empty.

ASIA MINOR. At Didyma the German excavations, which were begun in 1905, have now freed a large part of the old sanctuary of Apollo. The importance of the excavations here is shown by the numbers of inscriptions, accounts, etc., which throw light upon even the smallest details relating to the construction of the temple. At Pergamon the Germans have discovered a great sanctuary and temple of Demeter. From inscriptions it has been learned that the temple was erected about the year 262 B. C., in honor of Boia the mother of the Attalid dynasty, and that in Roman times a vestibule was added to the structure. Within the sanctuary were found altars belonging to Hermes, Asklepios, Helios, Zeus, and other gods. Besides this there came to light fragments of a statue dedicated to Demeter, a relief representing the goddess standing near an altar with a torch in her left hand, part of a statue of Asklepios, heads of Hermes, and Eros, and four portrait busts of Roman date.

Excavations on the much-coveted site of Sardis were begun in March by Professor Butler of Princeton University. The work has been the uncovering of the old city which lies between the Acropolis and the river Pactolus. This city on the western slope has been buried by erosion or landslide so that at the edge of the river the deposit is six metres deep. From this point up to the standing columns of the temple, the depth increases until at the latter point the depth is ten metres. Further up toward the Acropolis the deposit is even thicker. Fortunately, this long gradual slope has been sharply cut off at the edge of the river, so that a fine cross-section, or stratigraphical chart, has been afforded. The excavations began at hardpan in this face with a cut about thirty metres wide with the intention of making straight for the standing columns of the temple. Before long a pavement was encountered and other remains of the stratum of culture about a metre and a half above the original level. About twenty metres further on toward the temple a building much in the form of an elevated stoa came to light. The structure is believed to be of very ancient date. The whole structure was built of unevenly cut blocks of sandstone covered with a very fine hard coat of stucco very similar to that found on Mycenaean

sites. A fragment of a blue Persian tile, like the tiles from Susa, was found lying on the pavement of the building. To the north and south of this building were found bases that belonged to statues and stelai now disappeared. Further on, as the excavations proceeded toward the standing columns, the workmen came upon a solid pier of large blocks of white marble and then others of the same nature. These structures, about three metres square, proved to be the foundation piers of the columns belonging to the western porch of the temple. As the digging proceeded into the deeper soil, the building was found to be better preserved. Toward the end of the season's campaign a portion of the north wall of the opisthodomos was uncovered and found to be standing to the height of over two metres. This wall is of unusual thickness and bears on its inner surface a long Greek inscription which may be assigned to the third or fourth century B. C. From it we learn that the temple was dedicated to Artemis and not Cybele, and we have in it as well a *terminus ad quem* for the date of the building. By the end of the season seven piers had been uncovered on the southern flank of the temple, as well as much territory about the western end of the temple. The building proved to be a pseudo-dipteral octostyle structure. Traces of lime-kilns not far below the surface explain the bad condition of the temple at the end toward the river; apparently during Roman and Byzantine times this part of the structure had been used as a quarry. During the rainy weather in May a number of the tombs on the mountain side across the river were excavated. The steep face of the mountain is honey-combed with these tombs which were concealed from view by the soil that the wind and rain have carried over them. Those opened proved to belong to an ancient Lydian necropolis. Each tomb was approached by a *dromos* and closed by a door made of one large stone or a number of small ones. One of these bore three complete inscriptions in the Lydian script. The burial chamber, cut in the hard clay of the mountain, has a pointed, double-pitched roof, and double couches which were also cut out of the clay, located one on either side of the chamber and a third opposite the entrance. In one tomb, in place of this third couch, a staircase led down to another passage which ended in a second chamber similar to the upper one. Most of the tombs had been rifled at a very early date. In most of them were found non-Hellenic pottery of good quality, in some of the tombs bronze objects, and in one a ring with an Egyptian scarab. Alabastra of Egyptian form were found in several tombs, and in one which had not been previously opened three beautiful gold necklaces. These burials belonged to a period considerably earlier than that of anything unearthed in the excavations across the river.

GREECE. The Greek Archæological Society has carried on many minor excavations and has busied itself as well with restoring buildings. The Propylaea has come in for especial attention. The restoration of this building has been made possible by careful studies that have been made by members of the American school. Hill has demonstrated that the old Parthenon (which was in process of construction at the time of the Persian wars) had sixteen columns on the side and six on the end, instead of nineteen and eight as Dorpfeld believed. At Chæroneia the Greeks have been carrying on excavations. At Colonus,



**STEPS AND INNER ROW OF COLUMN BASES FROM THE WEST**



**PART OF WALL OF ACROPOLIS**

**EXCAVATIONS AT SARDIS**

৩৩৩

Svoronos, while investigating the topography of the hill of Colonus Hippias, has discovered the "chasm" in the sanctuary Erinyes, in which the scene of *Œdipus Coloneus* is laid. The "chasm," which is 15 metres in depth, was situated below the foundations of a small, modern house located on the ancient road which led from Thebes. After the chief landmark of Colonus had thus been identified the other precincts mentioned by ancient writers were easily discovered. It also proved possible to establish the site of the Academy. At Corinth the American School has devoted most of its time to the excavations at Peirene and the theatre. In the latter place more Greek seats have been found *in situ* buried in the foundation of the *diazoma* of the Roman structure. At the fountain of Peirene two of the four reservoirs belonging to the earliest fountain have been cleaned out as well as a large part of the supply tunnels. The basin is located inside a building which is covered by a corbelled vault constructed of heavy blocks, which recalled to the excavators the system of vaulting in the galleries of the Mycenaean fortress wall of Tiryns. It appears that the fountain-house of Peirene is actually of prehistoric date, for neolithic and geometric potsherds were found there in great quantities. The spring which supplies the fountain is a natural one. To the north of Peirene colonnades have been discovered which complete the boundaries of the rectangular court and have been identified with the Peribolos mentioned by the periegete Pausanias as containing the picture of "Odysseus slaying the suitors." Perhaps the most interesting of the new discoveries in Crete is the finding of the late Minoan I cemetery at Gournia by Seager. The type is one previously unknown. It lies near the sea below the town of Gournia on the side of the hill by the name of Sphoungaras. The earliest graves discovered belonged to the usual Middle Minoan II type and contained the regulation pottery, vases of stone, and gold ornaments similar to those previously found at Moklos (recorded in the YEAR BOOK for 1908). Most of the burials—about one hundred fifty in number—were of such a character as to make the cemetery interesting. The bodies were found to be buried in inverted jars with the knees drawn up to the chin. In order to accomplish this the corpse had first been bound in a cramped position and then inserted into the jar head foremost. In no case was there evidence of burning. The date of the necropolis, that is, the Late Minoan I and Middle Minoan III periods was afforded by the character of the decorations painted upon the vases and by the objects found with them. The cemetery is somewhat earlier than the chamber tombs at Knossos. At Vrokastron, a hill about a thousand feet above the sea near Gournia, the Americans also unearthed part of a town the remains of which range from Early Minoan to the Geometric periods. In the level of the latter period iron was found in the same abundance as bronze. At Tylissos, a place about four hours west of Knossos, the excavation on the site of a Minoan building, begun in 1909, has been continued. In the rectangular structure near by, measuring 25.70 m. by 65.70 m., two steatite tables of offerings were found together with horns of oxen, deer, and wild goats, as well as many bones and teeth of pigs. At Hagia Triada near Phaistos, the Italians have made new excavations of an extensive character. The most important result of this work has been the dis-

covery of a great portico with eight rectangular piers of which the bases, built of limestone, are still preserved. At either end of this portico was located a staircase which led to an upper story. Of all the places in Crete, Knossos still continues to be of great interest. Under the southern porch of the palace there has been uncovered a huge rock-cut cistern, some ninety-five feet in circumference and fifty-six feet in depth, with a spiral staircase cut in the wall some nine feet from the bottom. Since nothing which makes it possible to descend to a point later in date than Middle Minoan I vase-fragments was recovered from the cistern, it is clear that the cistern is of Early Minoan date. It shows to what degree of culture the Cretans had attained at this time. Near the great Royal Tomb at Isopata more graves have been discovered. Here were obtained the most important results of the season's campaign. For six chamber tombs, belonging to the most flourishing period of the later palace were located. This dates them in the second half of the fifteenth century B. C. Although the tombs had previously been pillaged, the finds were of great importance. Late Minoan II style vases were obtained, and a small gold ring with two goddesses clasping hands and standing in front of their shrines. Besides this there turned up a new class of vases painted with unfixed colors and destined for funeral purposes. Perhaps the most important feature attaching to the tomb, called the "Tomb of the Double Axes" by Evans, is its religious character. In the burial chamber, about six m. square, the grave is sunk in a raised platform while all around the chamber run benches cut in the rock. The ritualistic double axes and the remains of a steatite rhyton suggest that originally the chamber was fitted out as a shrine for the cult of the dead. A comparison of the finds with those of the Germans at Tiryns shows that the Mycenaean culture is a parallel development with and not the mother of the Late Minoan culture.

At Delos the French have shown that the sanctuary of the foreign gods has two divisions—one for Syrian and one for Egyptian deities. The Egyptian temple and altar, dating at the end of the second century B. C., replaced sanctuaries of Serapis, Osiris and Anubis mentioned in inventories of the second Athenian league.

On June 17th, Dorpfeld made a discovery at Leukas which seems to back up his Ithaka theory, for he found a great area of seven circles of graves. In the largest of these circles (about nine m. in diameter) was located a fine burial of Homeric times, from which were obtained forty-nine gold beads, a silver arm-band, a quantity of obsidian knives and eight clay vases of every possible shape—among others a cask 1.10 m. tall in which the whole interment was placed. The cask was covered by a second.

In Northern Greece members of the British School examined two mounds, one at Tsangli, the other at Rachmani; the former was about two hundred by two hundred and ten m. in area with ten m. of deposit, the latter smaller in size. From these and previous results it is now possible to make four prehistoric periods for Thessaly. These are Neolithic I with red-on-white painted pottery, Neolithic II, Chalcolithic, and Early Bronze age, with unpainted pottery. The latter part of this is contemporary with Late Minoan II and III. At Sparta the British School put in a short season, which was

chiefly devoted to the excavation of Mycenaean remains on the hill of the Menelaion. A large number of late Mycenaean houses were found and from one of the best preserved were recovered some fine kraters and curious clay sealings used to close the mouths of wine jars; they had been tied in place with rushes and then stamped with a seal. Nothing of Greek date was found. The large Mycenaean town on this hill was probably destroyed by a fire at the beginning of the Iron Age. Sparta was refounded on the classical site.

At Thebes a Mycenaean cemetery has been discovered about the sanctuary of Apollo, and in the excavation of the temple countless Geometric clay objects were found. The work of the Germans at Tiryns shows that the excavations of Schliemann were incomplete. The most important finds made this year were remains of mural paintings, including parts of horses, a fragment of a cult scene, two warriors with lances, a charioteer, and particularly some fragments belonging to a boar hunt, in which white dogs are attacking boars caught in a net.

CYRENE. In June, 1910, the Archæological Institute of America obtained from the Turkish government a firman which allowed it to conduct excavations on the site of ancient Cyrene. About November 1st. the expedition under the leadership of Mr. Richard Norton reached the site of the proposed excavations, and in spite of all obstacles, such as the difficulty of obtaining efficient workmen and of transporting supplies from Malta—the nearest possible point—a good beginning was made during the months of November and December. The hill which rises above the fountain, believed by Norton to be the ancient Acropolis, was attacked with the result that various walls both of Greek and of Roman workmanship were uncovered and many small objects brought to light. Although as yet no finds of great value have been made, the excavators feel that there is every reason to look for discoveries of the greatest importance as the work progresses.

Cyrene was found by the expedition to be much as when left by Smith and Porcher, who made desultory excavations on this place. Their work, of course, has been somewhat overgrown. Of the inscriptions recorded by these men some have disappeared and some now remain in place. The extent of the town is at present one of its most striking features. According to Norton, a circle of a radius of five miles drawn from the Acropolis as a center would probably not include all the terraces, tombs, buildings and reservoirs in sight. These remains belong to all ages and until further work has been done it will be impossible to make any archæological division of the city. Except below the fountain the site is apparently not deeply buried.

ITALY. At Pompeii much attention has been devoted to the preservation of the houses discovered 1902-1905, and a certain amount of digging has been done in a pre-Roman necropolis. At Ostia much of the city has been examined, and a street leading to the theatre with a portico on its west side has been cleared. On the property of the King of Italy was found one of the three public baths mentioned by Pliny. In Rome the excavation of the Basilica Emilia has continued, and the Republican house near the Arch of Titus cleared. On the site of the Villa Spithoever a fine stretch of the wall which enclosed the city in the 5th century B. C. has been

lately excavated. It is of gray-green tufa and surely older than the so-called Servian wall.

GERMANY. At Alzei a late Roman fort dating from the fourth century A. D., of stone and in the form of a perfect square one hundred and sixty-five m. wide has been excavated. The walls are of a uniform thickness of three m. They were defended by numerous semi-circular towers, but lacked a ditch. Along the west wall were discovered barracks of which one was heated by a hypocaust.

FRANCE. The results of the excavations at La Turbie—above Monaco—have just been made known. This work was conducted at the Trophy of Augustus which was erected to commemorate the victory of that emperor over the people of the Alps. The structure is three stories high with a colonnade around the top one. The trophy which is 46.10 m. in height is the largest known, and is thought by Dieulafoy to have been based, as concerns its design, upon the Mausoleum at Halicarnassos. For an account of the Holm expedition in China see EXPLORATION.

ARCHÆOLOGY. AMERICAN. SEE ANTHROPOLOGY AND ETHNOLOGY.

ARCHER, WILLIAM. See LITERATURE, ENGLISH AND AMERICAN, section *Political and Social Science*.

ARCHER-HIND, RICHARD DACRE. An English classical scholar, died, April 1910. He was born in 1849 and was educated at Trinity College, Cambridge, where he graduated in 1872. From 1875 to 1903 he was a classical lecturer at this University. His publications include, the *Phædo* (1883) and *Timæus* (1888), of Plato and various classical papers. He was co-editor of the *Cambridge Compositions* (1900) and of *Translation into Greek* (1905).

ARCHITECTURE. The world's record of architectural achievement for the year 1910 appears to be of an average character, both in quantity and in quality, though with possibly less than the average number of important structures begun and a few of the first importance completed.

GENERAL CONDITIONS DURING THE YEAR. Substantial progress has been made on a number of buildings of the first rank begun in previous years, such as the Campanile of San Marco at Venice, the great monument to Victor Emmanuel at Rome, the Cathedral of Liverpool, the Cathedral of St. John the Divine in New York, the Public Library in the same city, and some others; while the volume of new work of secondary importance, both public and private, and of domestic architecture has apparently been fully up to the average of past years. The year closed with the entire civilized world at peace, except for the armed suppression of revolts and rebellions in Turkey and Mexico; and, in spite of the universal complaints of high prices and the increased cost of living, the year has been on the whole marked by general prosperity. Although it both began and ended in Great Britain with the excitement of a political campaign involving fundamental constitutional questions, there does not appear to have been any serious check to building activity throughout the kingdom.

PROMINENT FEATURES. Among the most noticeable features of the year's record were the completion and opening of the International Exhibition at Brussels, Belgium, the sudden destruction by fire of a considerable part of its buildings and exhibits and the energetic restora-

tion and reopening of a portion of the destroyed section; the completion of the brick work of the Venetian Campanile; and the completion and opening of the vast Pennsylvania railway terminal in New York. An important international exhibition in Buenos Ayres, and a new and interesting architectural activity in South Africa also deserve notice.

**CITY PLANNING AND IMPROVEMENT.** Of greater significance, however, than any of the material achievements of the past year, has been the remarkable and, indeed, unprecedented manifestation of interest in city planning and municipal improvement of all kinds. This movement has not been confined to any one country or even to one continent. At one and the same period, besides numerous local conferences and conventions on this general subject, there were planned for the fall of 1910 two great international congresses, one in New York, the other in London. The New York project was fortunately abandoned early in the year, and the field was left clear to the British organizers, thus avoiding what would otherwise have been a very embarrassing rivalry and conflict of interests. The London conference is noticed below; it attracted the widest possible attention and doubtless did more for the interests of municipal improvement than any and all previous efforts to arouse and educate public sentiment in this direction.

**UNITED KINGDOM.** In England no great architectural undertaking has been started during the past year. The most important works under continuous prosecution were the Cathedral of Liverpool and the London County Council Hall. The Lady Chapel of the Liverpool Cathedral has been dedicated—the first completed portion of the gigantic design of Gilbert Scott, destined to be the greatest or at least the largest of English Cathedrals. Severe criticism of the original plan has led to changes whose wisdom is questioned by many, particularly the substitution of a single massive central tower for the twin towers originally proposed. The choir will constitute a vast hall for preaching, but its enormous dimensions and its height of one hundred and forty feet to the ridge of the vault threaten the complete acoustic failure of this grandiose structure.

Meanwhile the University of Liverpool has completed a very handsome and extensive block of buildings for its engineering laboratories, in a style monumentally ornate though hardly suggestive of their particular purpose and function. Birmingham has placed itself on record as the first city to profit by the Housing and Town Planning act of 1909, in the laying out of the Harborne and Quinton District. This act is destined to have a far-reaching and beneficial influence upon the growing towns of Great Britain, especially in controlling the development of their suburban districts. At Manchester a new departure in English Y. M. C. A. architecture is seen in the new Young Men's Christian Association building by Messrs. Woodhouse, Corbett and Dean, a ten-story edifice of concrete construction throughout. The extreme character of the designs of a country house and of several shops by Edgar Wood, in the same city, approaching in eccentricity and originality some of the most outré examples of the *Art Nouveau* in Vienna and Bohemia, seems to indicate a greater readiness to forego all precedent and accept innovations than is generally to be looked

for in an English city. At Belfast (Ireland) an important competition was held for new buildings for the Medical School for Queen's University. The winning design, by W. H. Lynn, R. H. A. of Belfast, shows an interesting treatment of an irregular block enclosing a large quadrangle.

In Edinburgh the most important architectural event was a competition for a large hall for public concerts, to be known as Usher Hall. The successful design, by Stockdale Hanson and Sons and H. H. Thompson, is in process of erection. The award aroused some criticism, and the selected design was certainly less interesting in external architecture than some of the others; but was probably, all things considered, the best solution of the difficult problem of a concert hall to seat 3450 auditors. In the same city the new chapel to St. Giles's church was carried well on toward completion by its architect, R. S. Lorimer (not H. T. Oliver as reported in the *YEAR BOOK* for 1909).

In London the great County Hall has not yet begun to appear above ground, owing to the extensive preliminary works necessitated by its site to the southeast of Westminster Bridge. The embankment six hundred feet in length along the Thames has been completed in granite in the same general style as the Thames Embankment proper, under the direction of Mr. Fitzmaurice, O. M. G., and the foundations have been laid and the superstructure begun, of the County Hall, from the plans of Mr. Ralph Knott.

Next in importance to this, among works in progress during 1910, should be mentioned the extensive additions to the British Museum now being carried out from the designs and under the superintendence of Mr. Burnett of Glasgow. The old building, ill-planned behind its impressive Ionic colonnaded facade, is being completely remodeled and greatly enlarged, and when completed will form one of the finest architectural compositions in London.

An interesting and extensive architectural project has been undertaken by representatives of French interests in London, to be erected on Aldwych, the curved thoroughfare laid out a few years since to connect the Kingsway with the Strand. It will occupy an entire block, and is to contain a theatre for French drama, an exhibition hall, an elaborate French club-house, shops and many other features which will make it a notable artistic commercial and social center. The building, from the plans of Ernest Girard, will have a frontage of over six hundred feet, and will cost at least \$4,000,000. Unfortunately its exterior design is far from being worthy of the splendid architectural opportunity offered, or of the best traditions of French art.

More interesting architecturally as well as structurally, though of relatively small size and cost, is the church of St. Barnabas, Dalston, N. E., erected wholly of reinforced concrete from designs by Professor C. H. Reilly of the Liverpool School of Architecture. The entire structure, walls, floors, vaulted roof and dome, is of ferro-concrete construction, carried out with boldness and perfect artistic sincerity.

The completion from designs by Walton and Godfrey, and the inauguration of the new Crosby Hall in Chelsea, on the site of the historic sixteenth century house of the same name, was another item of interest in the year's record of the metropolis.

The creation of "garden towns," "garden

suburbs" and "garden villages" has taken on an extraordinary extension both in and out of London, and it would be impracticable even to catalogue the names of those begun, continued or finished in 1910. A few named at random are one at Hull, one in Hempstead, London, one at Ilford completed, and one at Kingston, one begun at Romford, and so on.

**INTERNATIONAL TOWN PLANNING CONFERENCE.** By far the most notable architectural event of the year in London was the International Town Planning Conference opened October 18th, under the auspices of the Council of the Royal Institute of British Architects, under the presidency of Leonard Stairs, with John Burns as Honorary President, Sir Aston Webb as Chairman of the Executive Committee, and J. W. Simpson as Secretary General. Delegates from all the principal nations took part in the Conference, those from the United States including among others Daniel H. Burnham of Chicago and Mr. Mulford Robinson. Germany, France, Belgium and Sweden were especially well represented among the European nations, and the papers and discussions were admirable in their scope, thoroughness, variety and breadth of view. The topics treated included not merely the architectural and other æsthetic aspects of city planning, but those relating to circulation, hygiene and the economic and governmental phases of the problems involved. It became clear that in the scientific study of these problems, as well as in the number and extent of the enterprises of city improvement undertaken or completed, the German Empire now leads the world. But Sweden, Belgium, Italy and France have made important and valuable contributions to the development of the science and art of town planning, and great Britain has made extraordinary strides in the same direction during the past few years. City Planning constitutes a distinct department of instruction in the School of Architecture of Liverpool University, and the Town Planning Act of 1909 is already bearing practical fruit in projects for municipal and suburban improvement throughout the United Kingdom.

The United States appeared to advantage so far as the widespread interest and activity in and for town improvement are concerned, and in the quality of some of the particular schemes presented at the Conference; but as a whole we are behind most of the European nations both in results thus far achieved and in the general recognition of the scientific principles that should underlie the whole movement. An important and most interesting feature of the Conference was the magnificent collection of plans and drawings exhibited in the Burlington House galleries.

**GERMANY.** The remarkable activity in German city-building and improvement, alluded to above, still continues. New railway terminals, bridges, town halls and municipal theatres have been projected, begun, carried on or completed, and there has been an unusual number of competitions for the remodeling of existing suburbs, or the laying out of new ones. Greater Berlin in various districts, Munich, Cologne, Düsseldorf, Nuremberg, Essen, and Ulm have all recorded during the year some enterprise of this sort, more or less important. An especial effort is being made to relieve congested districts and encourage the building of cottage-settlements for the laboring and wage-earning classes. As

examples of the general movement, Schöneberg in Greater Berlin has adopted a definite plan of improvement and development and has awarded the prize for a design for a new Rathaus (Town-hall) to Berger & Neidenorff, Cologne, beside plans for new suburbs, has adopted designs and begun the erection of a new bridge across the Rhine and of a new School of Industrial Art; the latter by Frantz Brantzky of Cologne is, like so many recent public buildings in Germany, positively ugly in exterior aspect, but well planned and scientifically arranged. In Stuttgart the first and second prizes were equally divided between Schlösser, Weirther & Bercher, and Lemp & Riethmüller, for an extensive block of buildings for the General Railroad Offices as the result of an important competition. Frankfurt announced an interesting competition for the architectural treatment of the inner end or head of the harbor. Darmstadt has begun the erection of an extensive municipal bathing establishment, a class of buildings in which the Germans are only rivaled by the English. Here again an interesting plan is housed in a dull and commonplace exterior. Among other undertakings of the year may be mentioned the new Kaiserbrücke (Emperor's Bridge) at Bremen, a Catholic church at Essen, a National Bismarck Monument at Bingen, and perhaps a score of "Bebauungsplänen" or plans for laying out streets, districts or whole suburbs, among which we can only mention as examples those for the new Bennigsen street in Hannover by Usadell of that city, and for the remodeling of the Kleberplatz in Strassburg.

**AUSTRIA.** In Vienna a beginning has been made of the remodeling of the square in front of the Church of San Carlo Borromeo. A new theatre, the Urania, has been erected in connection with a Urania club-house. A credit bank at Laibach from designs by Fr. Krasny; the rebuilding of the ground formerly occupied by the barracks at Lintz from designs by R. Traska; a picture-gallery by H. Ried of Vienna at Reichenberg and many buildings of more or less importance, public and private banks, clubs, schools, theatres, churches, townhalls, and mansions, in Bohemia, belong to the record of 1910 without deserving separate mention. Bohemia continues to be the field for the wildest eccentricities of the *Moderne Kunst* or *Art Nouveau*, which seems to rejoice in bare and ugly exterior, devoid of cornices, moldings and every feature which can impart charm or even interest to the design. Occasionally, however, the decorative sculpture by the very brutality of its modeling, succeeds in attracting attention and even admiration.

**FRANCE.** There seems to be less activity in France than in Germany, Austria and England, and even Paris offers a small showing for the year. The flood which so seriously damaged the city in January, when the Seine reached a higher level than at any time on record since the end of the seventeenth century, may account in part for this reduced activity. A new building or "Annexe" for the Department of Posts and Telegraphs, in the Cité Martignac, by Fr. Le Cœur, appears to be the most important of the new buildings of the year. Apartment-house building continues on the same lines as in other recent years, with much charming decorative detail, but with little improvement in the handling of the general composition. Not a little new work is being done in the old Latin Quarter, which is gradually losing its pictur-

esqueness. A new Students' Club is among the interesting structures in that district. The great campanile of the Sacré Cœur church on the heights of Montmartre has been carried up thirty or forty feet higher; it is to be completed by 1912.

Elsewhere in France there is little to chronicle, besides the usual grist of provincial theatres, small parish churches, hospitals and schools. A new château at Villers aux Erables by A. Guilbert is one of the most interesting of works of the second grade of importance in a refined and pleasing version of the Louis XVI. style, free from the aberrations of the New Art. Not strictly architectural, but architecturally interesting, is a railway bridge over a branch of the Rhone near Montargis, consisting of a single arch of masonry with a span of two hundred and sixty-two feet and an elevation of two hundred and four feet above the Varleérine River.

An interesting feature of the year's record is the proposal, somewhat widely discussed, to reduce the numbers of the vast army of official architects holding government appointments which are often sinecures but which confer official and social standing upon the incumbents.

**BELGIUM.** In Belgium the most notable buildings of the year were those for the International Exhibition at Brussels. The main palace, by Ernest Acker, in an unaffected Renaissance style wholly free from "modern" eccentricities, presented an elegant if not altogether imposing façade of eight hundred feet. Among the numerous special buildings the most interesting were that of the Dutch Government, more picturesque than almost any building in Holland, and the striking "New Art" building of the Herstal Arms Works, with its effective towers. The calamitous fire which in August destroyed the British section and large parts of the French and Belgian sections of the main palace, has already been referred to. It has aroused much discussion of the whole question of the construction and material to be used in exhibition buildings and in the stalls and display structures which they contain. A great new hotel, the Palace on the Place Rogier, by Leuer and Ponepe, was the most important permanent edifice of the year in the Belgian capital, which with Antwerp and some other cities was also engaged during the year in planning and executing comprehensive schemes of municipal improvement. Antwerp has planned, among other things, a new boulevard and ring of buildings on the site of the old fortifications.

**ITALY.** In Italy, the past year has witnessed in Rome the advance by a long stage towards completion of the Victor Emmanuel monument, including the setting up of the colossal equestrian statue of the King. The Palace of Justice has been completed, and much work done on the coming Exhibition of Fine Arts to celebrate the semi-centennial of Italian independence. The United States building for this exhibition, an interesting colonial design by Carrère and Hastings, with extensive gardens behind it, was begun and is attracting much admiring attention. At Turin work was begun on the buildings for the industrial exhibition of 1911. Milan reports continued work on the Sacred Heart Church and the laying out of an extensive garden suburb; Venice, the completion of the brick-work of the campanile of St. Mark, ready for the open belfry and its square spire.

**SWITZERLAND.** At Geneva a handsome new Museum of Art and History has been erected from designs by the architect of Camoletti.

**RUSSIA.** There has been a remarkable building activity in St Petersburg. The year's record is of seven hundred new buildings, mostly residences, costing sixteen millions of roubles. In the same city was held the first Russian Congress of Architects, which opened in December under the patronage of the Grand Duchess Maria Pavlovna.

**ARCHÆOLOGY OF ARCHITECTURE.** In the archæology of architecture in Europe, including the maintenance and restoration of ancient buildings, the most notable event has been the controversy over the state of the Leaning Tower or Campanile at Pisa. A government commission, as the result of recent measurements compared with those recorded in past times, reported a dangerous increase in the inclination of the tower, with the consequent necessity of costly and difficult engineering work to save it from destruction. Professor W. H. Goodyear, of the Brooklyn Institute, N. Y., however, pointed out in a series of minutely exhaustive articles, that the commission had made but a cursory examination both of the building and of the records, and by a most remarkable analysis both of their figures and of the records claimed to have proved that there has been not the slightest settling in seventy years. These articles have attracted world-wide attention, and the general conclusion seems to be that the American expert has proved his case. At Winchester (England), the underpinning of the defective foundations of the Cathedral has been carried out with great success under the architect, Mr. T. G. Jackson, R. A.; but the difficult problem of restoring the south transept front to verticality has not yet been attacked.

In France the restoration of the abbey of Fontevault has progressed under Mr. L. Magne, and has laid bare a number of tombs of the Plantagenets.

**UNITED STATES.** While the volume of building has not equaled that of 1909, in which the full tide was reached of reaction from the panic of 1907, it was nearly equal to that year's product. Thus in September, the building permits issued in fifty-eight cities were for buildings aggregating in cost \$49,000,000, as against nearly \$52,000,000 in September, 1909, a falling off of about six per cent. This is probably fairly representative of the year's record generally. In New York this record will fall little short of \$200,000,000.

**MUNICIPAL IMPROVEMENT.** The activity in municipal improvement continues unabated, especially in the Western and Central States. Thus Cleveland is rapidly progressing with the monumental layout of 1905, and is actually reaping a profit from it in the form of greater economy in the total ultimate cost of buildings and grounds as compared with the old-time scattered purchase of sites for public buildings. Denver has purchased land for the execution of an interesting civic-centre scheme, and Milwaukee, Minneapolis, Columbus, O., San Diego, and Los Angeles, Cal., in the West, Roanoke, Va., and Greenville, S. C., in the South, and Buffalo, Rochester, Philadelphia and Hartford, are all actively prosecuting their enterprises in the same direction. One-half mile of the new Philadelphia Parkway has been completed, and Buffalo has purchased land for a new central rail-

way station and civic square. At Los Angeles there was held a conference on city improvement. Washington, D. C., gave out to competition the designing of three important buildings to stand upon the stately Mall, respectively for the departments of State, Justice and Commerce and Labor.

Among other important enterprises involving the architectural and landscape treatment of large areas may be mentioned the finely monumental plan by Cass Gilbert for the development of the University of Minnesota, following the usual American system of isolated buildings without enclosed courts, and a competition for a garden village for a Masonic Home at Elizabethtown, Pa.

**NEW YORK.** In New York the great Public Library was brought to entire completion except as to some of the interior decorations; the choir of St. John's Cathedral was completed and the furnishings (organs, stalls, etc.) partly installed; the foundations of the great Municipal Offices nearly completed—a gigantic and complex work of engineering; and the magnificent Pennsylvania Terminal brought to completion. This superb structure now stands without a rival in the world among buildings of its kind. The buildings of the Union Theological Seminary (Allen & Collens) were completed and dedicated; they are a distinct architectural adornment to the upper section of Manhattan. In the near neighborhood, Columbia University completed and opened Kent Hall for its Law School, and began the erection of a new Hall of Philosophy, both buildings by McKim, Mead & White.

Among new office buildings the most noticeable were the thirty-one story Whitehall building (Clinton & Russell), and the thirty-two story Liberty Tower (H. I. Cobb). Work was begun on the fifty-four story Woolworth building (Cass Gilbert) which will surpass the Metropolitan Tower in height and will, it is to be hoped, mark the extreme limit of height for such buildings. There has been a remarkable development of business building along Fourth Avenue, and of apartment house building in the neighborhood of Columbia University.

**OTHER CITIES.** In Washington the year witnessed the completion of two interesting buildings; the handsome structure by Kelsey and Cret for the Pan-American Union, and the building for the Society of the Daughters of the American Revolution by E. P. Casey. In Baltimore the new Walters Museum was opened, an unusually elegant design by Delano & Aldrich; and Pittsburg announced the award to Cram, Goodhue and Ferguson of the competition for the First Baptist Church. Another important competition was that in Oakland, Cal., for a new City Hall, awarded to Palmer & Hornbostel, for a striking design recalling somewhat that for the New York Municipal Offices.

In St. Paul and Minneapolis there was considerable important work recorded for 1910; in the first-named city, a building for the Y. W. C. A. by Clarence Johnston, the Hotel St. Paul by Reed & Stern, and a Masonic Temple by Bieker & Orth; in the second, the Plymouth Building (Long, Lamoreaux & Long), St. Mark's Protestant Episcopal Cathedral by E. H. Hewett, a very interesting domical chapel and crematory in Lakewood Cemetery by H. W. Jones, and by the same architect a fine warehouse for Butler Bros. In the same State, Duluth erected from

plans by D. H. Burnham a striking and dignified County Court House.

The record from Chicago includes the completion of the City Hall by Holabird & Roche, forming with the Court House, reported in 1907, a single columnar design, colossal in scale, occupying an entire block; the La Salle Hotel by the same architect, the new Northwestern Railroad Station by Frost & Granger, and many large commercial buildings. From other cities the following buildings have been reported among many others of perhaps equal importance: At Hartford (Conn.), the Morgan Memorial by B. W. Morris; Chelsea (Mass.), a new City Hall by Peabody & Stearns; Portland (Maine), the competition for the New City Hall awarded to Carrere & Hastings, Stevens & Stevens; West Point, completion of the impressive Chapel for the Military Academy (Cram, Goodhue & Ferguson); Louisville (Ky.), a group of buildings for the Presbyterian Theological Seminary and a Christian Science Church, both by McDonald & Dodd; San José (Cal.), the State Normal School by W. D. Coates—a somewhat interesting essay in the *Art Nouveau* spirit; Far Rockaway (N. Y.), the Sage Memorial by C. & G. Crane; Garden City (N. Y.), Doubleday & Page's Printing Works, with garden surroundings, by Kirby & Petit. Louisiana announced the passing of an Architects' Registration Law.

**OTHER COUNTRIES.** Australia has chosen a site for a new capital at Canberra, N. S. W., and begun measures for a competition for the layout of the new city. In South Africa, at Bloemfontein, new Law Courts by Hawk & McKinlay, and at Pretoria, Union Government Buildings, by H. Baker, were under erection or recently completed; and the cities of Khartum and Omdurman were being replanned and rebuilt on approved modern lines. In Asia, Calcutta reported the erection of a new Government Press Building at a cost of six and one-half lakhs of rupees; Karachi, a new Municipal Building, by J. E. Wynnes of Edinburgh; and Nagoya (Japan), the holding of an important Industrial Exhibition.

In South America the greatest activity seems to have been in the Argentine Republic, greatly stimulated by the centennial celebrations of the independence of the Republic and by the Exhibition at Buenos Ayres. Besides the buildings of that Exhibition, there was heavy expenditure upon the improvement of the splendid Plaza de Congreso; costly high school buildings were begun at Parana, Santiago de Estero and five other cities, in addition to one completed at Buenos Ayres; and at Samborombón Bay, at the mouth of the Plata, the execution of a vast scheme was begun for the building of a new harbor, town and railway terminal from designs by an English architect, Mr. Peache.

The necrology of 1910 includes the death in England of George Aitcheson, W. R. A., Past President of the Royal Institute of British Architects, at the age of 84; in the United States, of W. G. Preston, F. A. I. A., and of I. M. Clark, A. I. A., both at Boston; of Alfred Stone, F. A. I. A., at Providence; of G. W. Thompson, A. I. A., at Nashville, Tenn., born in England in 1835, the designer of many Catholic churches and schools; and of S. A. Treat, A. I. A., at Chicago, at the age of 71. The death of C. W. Clinton, F. A. I. A., of Clinton & Russell, at New York at the age of 72, removed

one of the charter members of the American Institute of Architects, and one of the greatest of all American designers of office buildings.

**ARCTIC CLIMATE.** See GEOLOGY.

**ARCTIC EXPLORATION.** See POLAR RESEARCH.

**ARGENTINA.** A South American republic extending from the South Atlantic westward to Chile and northward to Bolivia. The capital is Buenos Ayres.

**AREA AND POPULATION.** The republic consists of 14 provinces, 10 territories, and the federal district (city) of Buenos Ayres; the aggregate area is estimated at 1,139,000 square miles. The census of 1895 showed a population of 3,954,911; official estimate of December 31, 1908, 6,489,023; December 31, 1909, 6,805,684. About two-thirds of the inhabitants are foreign-born and children of foreign-born parents. Of the total at the end of 1909, 5,060,900 were reported as of Argentine nationality (by law children born in the republic of foreigners are Argentine); Italian, 843,540; Spanish, 424,086; French, 104,990; British and Irish, 26,324; Austrian, 24,785; German, 23,450. The population per square mile in the most densely inhabited provinces (excluding the federal district) was in 1908: Tucumán, 32.8; Santa Fé, 16; Entre Ríos 14.1; Buenos Ayres, 13.9; Corrientes, 9.8; Córdoba, 8.8. The most important cities, with populations on July 1, 1909, are: Buenos Ayres, 1,200,000 (1,228,955 on September 30, 1910); Rosario, 172,000; Córdoba, 95,000; La Plata, 95,000 (97,006 on June 30, 1910); Tucumán, 66,000; Santa Fé, 48,000; Mendoza, 39,000; Bahía Blanca, 37,755. The over-sea immigrants in 1909 numbered 231,084; of these, 93,528 were Italians, 86,798 Spaniards, 16,475 Russians, 11,765 Syrians, and 4120 French. From 1867 to the end of 1909, the total over-sea immigration amounted to 3,409,340. The notable influence of Italy upon the republic may be inferred from the fact that of the total number 1,892,721 were Italians; Spaniards numbered 882,271, French, 192,436, Russians, 93,349, Austrians, 64,252, Syrians, 60,359, Britons, 44,871, and Germans, 43,856. To the immigrant the government furnishes free transportation to that part of the country where he may choose to settle.

**EDUCATION.** Primary instruction is free, secular, and nominally compulsory. In 1904 about one-half of the inhabitants over six years of age were illiterate, but statistics relating to 1909 show a considerable improvement in the literacy of children of school age (6 to 14). Children of school age in May, 1910, are reported at 1,200,212. There are reported 6371 primary schools, public and private, with 659,460 pupils. Secondary education is controlled by the Federal government. There are 26 lycées, with about 5800 students, and 45 normal schools, with about 4300. In addition some 20 special and technical schools have an enrollment of about 7000. For higher education there are national universities at Buenos Ayres and Córdoba and provincial universities at Santa Fé, La Plata, and Paraná, having an aggregate of some 6000 students. Of these, in 1909, 4364 were enrolled at Buenos Ayres, which is the largest university in South America. The state religion is Roman Catholicism, but religious toleration prevails.

**AGRICULTURE.** During the last 15 years agricultural development has proceeded at an ex-

traordinary rate, though, chiefly on account of drought, the crop returns for the year 1908-9 (the last for which official reports are available) show in general some decrease as compared with those of the preceding year. For 1895 there were reported under cultivation 4,892,004 hectares (1 hectare=2.471 acres), of which 2,040,683 were sown to wheat and 1,244,184 to corn. For the crop year 1908-9, the total area under cultivation was 15,830,563 hectares. Of these, 6,063,100 hectares were sown to wheat, 5,895,373 being harvested and yielding 4,250,086 metric tons; 1,534,300 were sown to linseed, 1,496,691 being harvested and yielding 1,048,852 tons; 2,973,900 were sown to corn, yielding 4,500,000 tons; 441,570 were sown to oats, yielding 464,252 tons; there were sown to wheat, linseed, oats, barley, millet, and rye a total of 8,242,690 hectares, of which 7,797,137 hectares were harvested, yielding 5,739,794 tons. Values of the three most important crops, in thousands of gold pesos, have been as follows for crop years:

Crops	1895-6	1899-1900	1908-9	1909-10
Wheat .....	34,006	70,272	194,356	178,036
Corn .....	24,416	22,743	87,437	113,850
Linseed .....	7,726	11,170	52,063	56,533

In the production of wheat Argentina ranks sixth among the countries of the world, the crop of 1908-9 being about 5.3 per cent. of the world's production; in corn, third (being exceeded by the United States and Austria-Hungary), the yield being about 4 per cent. of the world's production; in linseed, first, the Argentine production being over 35 per cent. of the total. For the crop year 1909-10 there were under cultivation 18,775,672 hectares, as compared with 15,830,563 for 1908-9, although the aggregate sown to wheat, corn, linseed, and oats, 10,869,750 hectares, showed a decrease of 3.2 per cent. The areas sown to the various crops for 1909-10 were: wheat, 5,836,550 hectares; corn, 3,005,000; linseed, 1,455,600; oats, 572,000; grapes, 122,469; sugar (cane), 70,750; barley, 60,011; potatoes, 48,514; millet, 27,922; beans, 26,000; alfalfa, 4,706,530; cultivated grasses, about 2,100,000. Estimates of production in the crop year 1909-10 are: Wheat, 3,825,000 metric tons; corn, 4,500,000; linseed, 800,500; oats, 591,000. On March 17, 1910, the President of the Republic laid the foundation stone of a barrage on the Neuquén River to regulate for irrigation purposes the waters of the Rio Negro.

**STOCK RAISING.** The number of live stock and their values in gold pesos are stated as follows for 1908: Cattle, 26,116,625—413,021,767 pesos; horses, 7,531,376—90,563,807; mules, 465,037—9,926,873; asses, 285,088—1,256,178; sheep, 67,211,754—126,437,993; goats, 3,945,086—3,661,609; swine, 1,403,591—8,895,960. The total value of these animals was 651,764,187 pesos, as compared with 378,926,803 pesos in 1895. Returns of the meat-packing industry for 1909 showed in the freezing and salting establishments a slaughter of 1,150,202 cattle, 2,985,970 sheep, 25,751 hogs, and 666 horses. The salting establishments are in Entre Ríos. What may be termed the neighboring salting establishments of Uruguay slaughtered 754,300 cattle in 1908 and 664,700 in 1909, and of Brazil (Rio Grande), 425,000 in 1908 and 660,500 in 1909.

Isabel of Spain and President Montt of Chile were among the visitors at Buenos Ayres. No Brazilian representative, however, was present, which was one of many signs of strained relations with that country. The explosion of a bomb at the Colón Theatre at Buenos Ayres on June 25 injured several persons. The government took prompt measures against the anarchists and about 100 were arrested on suspicion. A law was enacted empowering the police to transport any anarchist now in their hands. In July diplomatic relations were broken off with Bolivia on account of Bolivian criticism of the Argentine President's award in the boundary dispute between Bolivia and Peru, but they were resumed in December.

The International Agricultural Exhibition was opened at Buenos Ayres in the first week of July. The Exposition of Hygiene and the Railway and Land Transport Exhibition illustrated the recent progress of the country.

The budget presented in August showed a surplus of \$30,000,000 pesos paper, and estimated the revenue for the next year at \$152,000,000, being an increase of \$19,000,000. Another trans-Andine railway to connect northern Argentina with Chile was authorized by Congress in September.

The new President announced a new Cabinet in October.

**ARGENTINE EXPOSITIONS.** See EXPOSITIONS.

**ARGON.** See ATOMIC WEIGHTS.

**ARGYLL, DUKE OF.** See LITERATURE, ENGLISH AND AMERICAN.

**ARIZONA.** A Territory of the Mountain Division of the United States. Its area is 113,956 square miles, of which but 116 square miles are water. The capital is Phoenix.

**POPULATION.** The population of the Territory according to the figures of the Thirteenth Census was 204,364, as compared with 122,931 in 1900 and 88,243 in 1890. The increase in the decade 1900 to 1910 was 66.2 per cent. The population of the larger cities and towns will be found in the article on UNITED STATES CENSUS.

**MINERAL PRODUCTION.** The chief product of the mines of the Territory is copper, although gold, silver and lead are also produced in considerable quantities. The production of copper in 1909 was 291,110,298 fine lbs., as compared with 289,523,267 lbs. in 1908. This gives Arizona second place in the production of copper, being surpassed only by Montana. The production in 1910, according to the preliminary figures of the United States Geological Survey exceeded the output of 1909, and gave Arizona first place among the copper-producing States. The Bisbee district was the largest producer with an output of approximately 145,000,000 lbs., as compared with about 130,000,000 lbs. in 1909. There were produced in the Territory in 1905 1465 tons of lead and 2862 tons of spelter. In 1910 the value of Arizona's gold production, according to the preliminary figures of the United States Geological Survey was \$3,375,256, as compared with a value of \$2,626,800 in 1909. The silver production was 2,835,641 fine ounces in 1910, as compared with 2,523,600 fine ounces in 1909. Arizona also produced clay products, precious stones, tungsten, and a small quantity of zinc.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909-10 are shown in the following table:

		Acreage	Prod. bu.	Value
Corn,	1910....	12,000	390,000	\$429,000
	1909....	13,000	417,000	417,000
Spring Wheat,	1910....	17,000	379,000	455,000
	1909....	16,000	400,000	556,000
Oats,	1910....	4,000	160,000	144,000
	1909....	4,000	148,000	117,000
Barley,	1910....	34,000	1,224,000	1,102,000
	1909....	32,000	1,280,000	1,126,000
Hay,	1910....	116,000	244,000	3,172,000
	1909....	109,000	360,000	4,608,000

a Tons.

The area of the agricultural land in the Territory is 1,500,000 acres, but the area actually under cultivation is little in excess of 200,000 acres. Cultivation is carried on chiefly by irrigation. For an account of the various projects for the reclamation of arid lands, see IRRIGATION. The cultivation of oranges has been carried on with success and fruits of all kinds, both temperate and sub-tropical, are grown on a small scale. Sugar beets also have been grown successfully and about 4000 acres are under cultivation in this crop. Ostrich raising is an important industry and there was a marked increase in this industry in 1910. Over 6000 birds are kept in the Salt River Valley, more than 80 per cent. of all the ostriches in the country. As to the farm animals, the numbers of cattle and sheep raised in the Territory have increased considerably in the last few years, the increase of sheep being nearly 50 per cent. in the last three years. The wool clipped in 1910 amounted to 4,950,000 pounds.

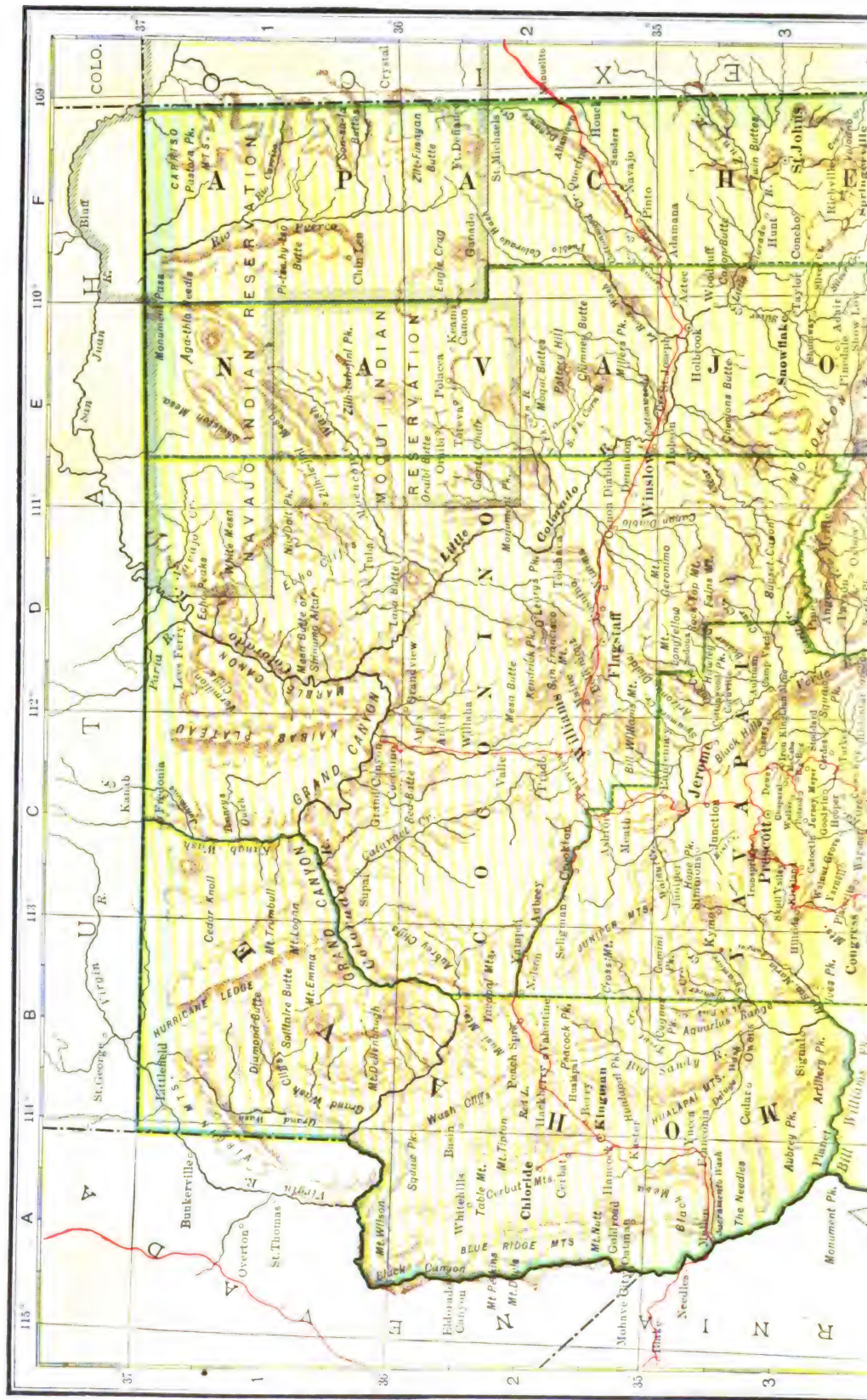
**EDUCATION.** The school children in the Territory between the ages of 6 and 21 in the school year 1909, the latest year for which statistics are available, numbered 36,729. The enrollment was 27,639 and the attendance, 17,863. The average monthly salary of male teachers was \$104.64 and of female teachers, \$79.61. There are normal schools at Tempe and Flagstaff.

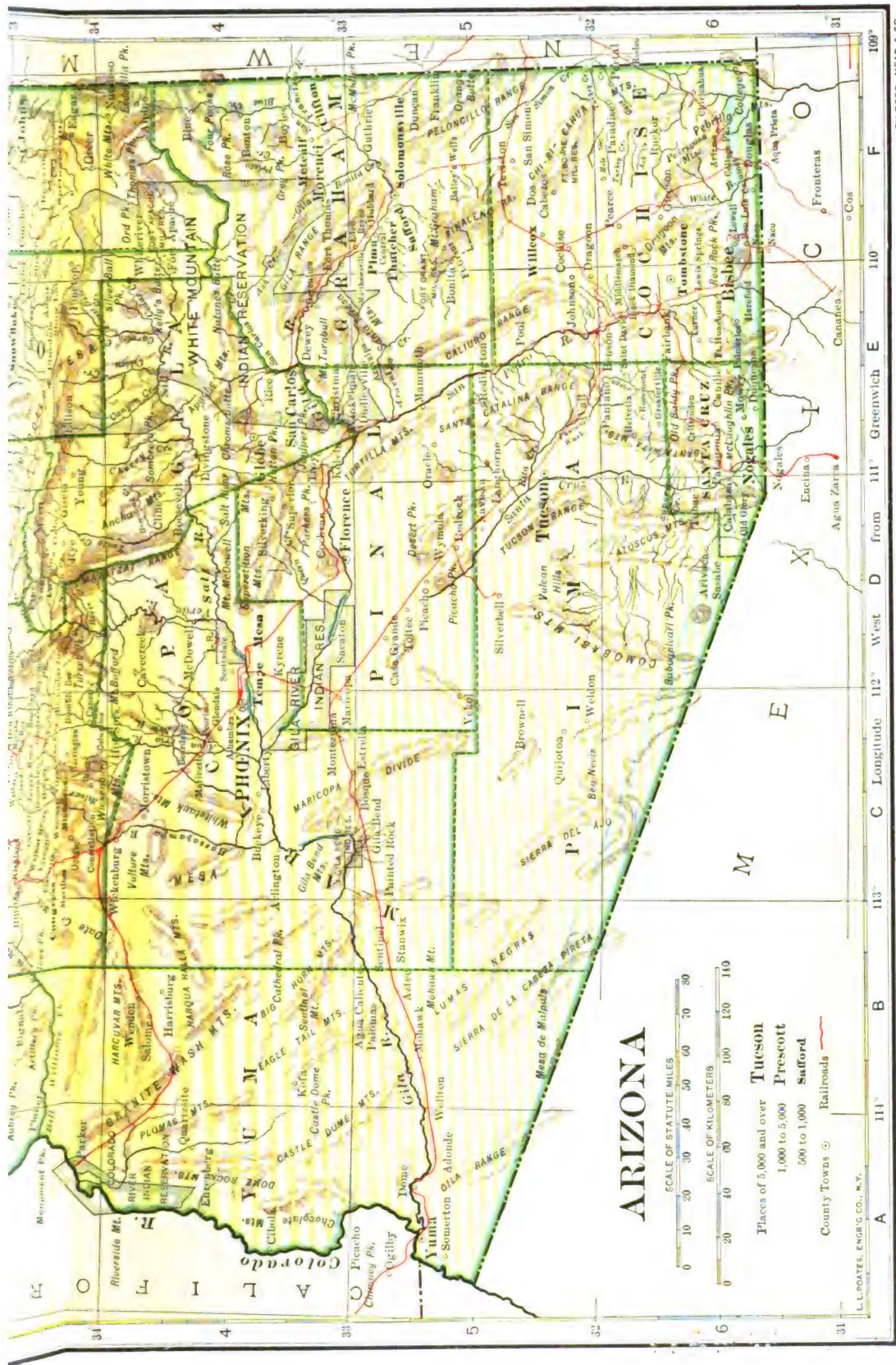
**FINANCE.** At the close of the fiscal year 1910 the cash in the territorial treasury amounted to \$507,721, an increase for the year of \$145,277. The revenues amounted to \$1,121,381 and the expenditures to \$976,103. The territorial debt is \$956,972, and there is owing to cities and counties \$2,098,303, making the total debt of the Territory \$3,055,275.

**CHARITIES AND CORRECTIONS.** The correctional and charitable institutions of the Territory include the Territorial Prison at Florence, Asylum for the Insane and the Territorial Industrial School at Benson. A Home for Aged and Infirm Pioneers is also maintained.

**POLITICS AND GOVERNMENT.** By the approval on June 20, 1910, of the Enabling Act, the citizens of the Territory were assured of the final consummation of their long struggle for admission to the Union as a State. By the provisions of this Act the Governor of the Territory was to call for an election to elect delegates for the preparation of the Constitution within thirty days of its approval. This election was held on September 12. The result of the election for delegates showed that the Territory, unlike New Mexico, was Democratic in its political complexion. Forty-four Democrats and eight Republicans were elected delegates to prepare the Constitution. The chief issue in the campaign for the election of these delegates was the initiative and referendum. This measure had the support of the Democratic party in the Territory and it is thus assured a place in the Constitu-







COPYRIGHT, 1907, BY DODD, MEAD & CO.



tion. The convention had sixty days for its session. In thirty days more the citizens of the State voted for a ratification of the Constitution.

The indications from the proceedings of the convention were that the Constitution would contain, in addition to the initiative, referendum and recall, other provisions even more radical. It was well known that President Taft had strong objection to such a Constitution, as he had already strongly opposed the Constitution of Oklahoma, upon which the Arizona Constitution was, to some extent, based. For this reason there were fears that the Constitution might not be accepted by the President and Congress. No elections were held in Arizona for territorial officers during the year as by a previous Act of Congress the former officers continued until the final acceptance of the Constitution. The fact that the legislature of the new State will be Democratic insures the presence in the Senate of two additional Democratic Senators.

**ARKANSAS.** One of the West South Central Division of the United States. It has an area of 53,335 square miles, of which 810 square miles are water. Its capital is Little Rock.

**POPULATION.** The population of the State, according to the Thirteenth Census was in 1910, 1,574,449, as compared with 1,311,564 in 1900 and 1,128,211 in 1890. The growth in the decade 1900 to 1910 was 20 per cent. The State ranks twenty-fifth in point of population, the same relative rank which it held in 1900. The population of the larger cities and towns will be found in the article UNITED STATE CENSUS.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909-10 are shown in the following table:

		Acreage	Prod. bu	Value
Corn,	1910....	2,884,000	69,216,000	\$40,145,000
	1909....	2,800,000	50,400,000	36,288,000
Winter Wheat,	1910....	195,000	2,710,000	2,547,000
	1909....	151,000	1,721,000	1,893,000
Oats,	1910....	172,000	4,730,000	2,176,000
	1909....	164,000	3,739,000	2,266,000
Rye,	1910....	2,000	24,000	24,000
	1910....	60,000	2,400,000	1,680,000
Rice,	1909....	28,000	1,120,000	1,008,000
	1910....	31,000	2,604,000	2,213,000
Potatoes,	1909....	83,000	2,310,000	2,125,000
	1910....	210,000	284,000a	3,124,000
Hay,	1909....	198,000	248,000	2,678,000
	1910....	900	585,000b	93,500
Tobacco,	1910....		815,000c	
	1909....		859,720	

a Tons. b Pounds. c Bales.

**MINERAL PRODUCTION.** The most important mineral product of the State is coal. There were produced in 1909, 2,377,157 short tons, having a spot value of \$3,523,139, an increase of 298,800 short tons in quantity and \$23,069 in value over 1908. Mining in the State in 1909 was not satisfactory either to the operators or the miners. Competition with petroleum and natural gas resulting from the development of the Louisiana and mid-continent fields adversely affected the market for Arkansas coal, and since 1907 has reduced the price from \$1.68 to \$1.48 a ton. In addition to this, whatever benefit may have been gained in 1909 by the recovery from the depression of 1908 was largely offset by a drought which lasted from the 1st of June to the middle of November. This not only created a crop shortage in the State, but affected the demand for fuel and caused a great scarcity of water at the mines and raised the cost of produc-

tion by increasing the expense of providing water for the boilers. There was no shortage of labor in the mines of the State during 1909. According to the reports of the State inspector in the last six months of 1909, 12 men were killed and 34 injured in the coal mines of the State. There is a considerable quantity of iron produced in the State as well as lime and limestone. In 1909 there was a small quantity of lead smelted. There was also a small production of spelter in 1909.

The acreage of corn in the State has almost been doubled within eight years. The acreage in 1910 was slightly in excess of that in 1909, while the production in the former year surpassed that in the latter year by nearly 20,000,000 bushels. A considerable area in the southwestern part of the State is devoted to the cultivation of rice. The acreage in 1910 showed a great increase over that of 1909, while the production more than doubled.

**EDUCATION.** The total school population of the State on June 30, 1910, was 573,842, while the enrollment was 390,987 and the average daily attendance was 255,135. The permanent school fund of the State amounts to \$1,134,500. The funds available for educational purposes in 1910 amounted to \$4,530,131 and the expenditures to \$3,187,082.

The first compulsory attendance laws enacted in the State became effective at the beginning of the school year 1909-10. Two acts were passed by the last General Assembly; one required a minimum attendance for one-half the school term between the ages of 8 and 16 years, and is effective in 31 counties; the other makes the age limit 8 to 14, effective in 9 counties. This leaves 35 counties without compulsory law. These measures resulted in a marked increase in the attendance in both the town and rural schools where these laws applied. The General Assembly also appropriated \$160,000 for the establishment of four agricultural schools in the State, one in each of the four districts. Measures were also enacted making possible consolidation of school districts.

An Education Commission made investigations during the year of the school system of the State and the laws under which it is organized. The first meeting of the commission was held on July 28, 1910, and a preliminary report was issued at the close of the year. The association made many important recommendations leading to the improvement of the educational system and administration in the State. A complete report will be issued later.

**POLITICS AND GOVERNMENT.** The biennial session of the legislature began in January, 1911. This was the first legislature to meet in the new State capital.

**CONVENTIONS AND ELECTIONS.** Governor George W. Donaghey, who was nominated for a second term in the Democratic primary held in March, 1910, over C. C. Kavanaugh, was elected Governor in the September election by a vote of 101,557 to 39,880 for Andrew I. Roland of Hot Spring county, the Republican candidate. The Socialist candidate, Dan Hogan, got 9194 votes. In the March primary the following Democratic candidates for Congress were nominated, all of whom were elected at the November election: First District, R. Bruce Macon; Second District, W. A. Oldfield; Third District, J. C. Floyd; Fourth District, Ben Cravens; Fifth District, H. M. Jacoway; Sixth

District, Joseph T. Robinson; Seventh District, W. B. Goodwin. At the September election an amendment to the Constitution providing for the initiative and referendum was adopted by a vote of 91,383 for to 39,080 against. A constitutional amendment to give cotton mills certain exemptions from taxation got 74,132 votes for to 54,485 votes against, but failed for the want of a constitutional majority.

**OTHER EVENTS.** The Arkansas Supreme Court on February 14, 1910, in case of Arkansas Stove Company v. State, held that the Act of February 1st, 1909, "requiring corporations to pay their employees semi-monthly, is not invalid as restricting the right of such employees to contract with such corporations, and that the Act does not deny the equal protection of the law, since all corporations of the class affected are treated alike under like circumstances."

**STATE OFFICERS:** Governor, George W. Donaghy; Lieutenant-Governor, J. T. Robertson; Secretary of State, Earl W. Hodges; Treasurer, John W. Crockett; Auditor and Insurance Commissioner, J. R. Jobe; Attorney-General, Hal L. Norwood; Superintendent of Education, Geo. B. Cook; Commissioner of Agriculture, Fred H. Phillips; Commissioner of Public Lands, R. G. Dye—all Democrats.

**JUDICIARY:** Supreme Court: Chief Justice, Edgar A. McCulloch; Justices, Samuel Frauenthal, C. D. Wood, William F. Kirby and Jesse C. Hart; Clerk of the Court, P. D. English—all Democrats.

**STATE LEGISLATURE, 1911.** Senate, Democrats, 34; Republicans 1; House, Democrats, 95; Republicans 5; joint ballot, Democrats, 129; Republicans, 6. Democratic majority, Senate, 33; House, 90; joint ballot, 123.

The State representatives in Congress will be found in the article UNITED STATES, section Congress.

**ARMIES.** See MILITARY PROGRESS and articles on countries.

**ARMY MANŒUVRES.** See MILITARY PROGRESS.

**ARSENIC.** The only arsenic produced in the United States in 1909, as in 1908, was that recovered in the form of white arsenic as a by-product in smelting. During the year white arsenic was saved at three smelters, at Everett, Washington, at Anaconda, Montana, and at Midvale, Utah. The total quantity of arsenic saved by these three smelters during 1909 was 1214 short tons, valued at \$52,946. The average price received from the companies ranged from 2.05 to 2.44 cents per pound. The prices around New York averaged three cents per pound. The imports of white arsenic in 1909 amounted to 4036 short tons, valued at \$303,728. There were also imported 183,705 pounds of Paris green and London purple valued at \$20,370. The imports came from Canada, Europe and Mexico.

According to the *Engineering and Mining Journal* the total production of white arsenic in the United States in 1910 amounted to 1326 tons. The producers continued to be the same as mentioned above. The Mexican mines worked only on the richest flue dusts and by no means up to their full capacity. In Canada there were three producers. See ATOMIC WEIGHTS.

**ARSENO-BENZOL** (dioxydiamidoarsenobenzenol; salvarsan; amido-arseno-benzol; "606"). A new arsenic compound discovered by Ehrlich and Hata and believed to be a specific for syphilis.

It was by far the most important contribution to the drug treatment of the disease during the year 1910, and bids fair, according to the most reliable observers, to equal quinine as a benefaction to the human race. Although discovered in 1907, it was not until last year that definite clinical results were announced. The drug owes its popular title "606" to the fact that during several years of experimenting with arsenical compounds, it was the 606th to be tried by the investigators. According to patent specifications, the substance is obtained from nitrophenol arsenic acid, and has the structural chemical formula:  $\text{NH}_2 \cdot \text{OH} \cdot \text{C}_6\text{H}_4 \cdot \text{As} \cdot \text{AsO}_3 \cdot \text{H}_2$ . It is one of the same series of arsenical compounds as atoxyl, advocated by Robert Koch several years ago as a specific for sleeping sickness. Since the recent discovery by Schaudin that syphilis was due to a spirillum, the *Spirochæte pallida* or *Treponema pallidum*, a new impetus was given to the search for a specific against this scourge of the human race. That such a specific is supplied by Ehrlich's remedy all observers seem agreed. It is claimed that a single dose causes the total disappearance of spirochetes from the tissues within a few days, and that healing of ulcerations and other lesions often begins within twenty-four hours. Parasyphilitic diseases, such as locomotor ataxia, as well as the acute and chronic stages of syphilis, are said to be materially benefited. Relapsing fever, another protozoön disease, due to the spirillum of Obermeier, is also cured, according to Iversen, by the new remedy, all spirilla disappearing from the blood after one injection. Whether or not the cure of either disease is permanent, the future alone will show. At any rate, the discovery was received on the Continent with remarkable enthusiasm, and the results thus far reported border on the marvelous. The drug is not yet on the market nor available for general use in America. Considerable care is necessary in its administration. Severe reaction, temporary blindness, convulsions, and other unpleasant symptoms and a few deaths have attended its use, but whether these were due to the drug itself or to a faulty method of preparing it with impure methyl alcohol, is not yet decided. Ehrlich strongly advises against using the remedy except in patients who are sound except for the spirochete infection. Syphilitic nursing infants are best treated through the mother. The drug does not pass through the milk, but "antibodies" are formed in the mother which are equally effective and much safer.

**ART.** See ARCHITECTURE; MUSIC; PAINTING; SCULPTURE.

**ARTIFICIAL GEMS.** See CHEMISTRY, INDUSTRIAL.

**ARTILLERY.** See MILITARY PROGRESS.

**ARTS AND LETTERS, AMERICAN ACADEMY OF.** A body founded in 1898 by the action of the American Social Science Association, which, at its annual meeting nominated a small group of authors and artists to constitute a national institute of arts and letters. The qualification for membership in this body was to be a notable achievement in art, music or literature, and the membership was limited at first to 150, but afterwards to 250. When the institute had included in its membership a large proportion of the most notable artists and authors of the United States, it declared its purpose of proceeding to an organization of an Academy of

Arts and Letters, the members of which should be chosen from the members of the institute. Seven members were chosen from the National Institute of Arts and Letters and provision was made for a progressive responsibility in the choice of those to be elected later. The first seven members were selected in 1904 and were William Dean Howells, Augustus Saint-Gaudens, Edmund Clarence Stedman, John La Farge, Samuel Langhorne Clemens, John Hay and Edward A. MacDowell. These were empowered immediately to elect eight more members and they chose Henry James, Charles Follen McKim, Henry Adams, Charles Eliot Norton, J. Q. A. Ward, T. R. Lounsbury, Theodore Roosevelt, and Thomas Bailey Aldrich. These fifteen members then proceeded to elect five more, Joseph Jefferson, John S. Sargent, R. W. Gilder, H. H. Furness and John Bigelow. These twenty representatives then elected ten additional, raising the total membership to thirty. The new members chosen were Winslow Homer, Carl Schurz, A. T. Mahan, Joel Chandler Harris, D. C. French, John Burroughs, J. F. Rhodes, E. A. Abbey, Horatio W. Parker and William M. Sloane. The constitution of the Academy declares that its aim is to represent and further the interests of the fine arts and of literature. Fifty is established as the limit of its membership. Elections have taken place at intervals, first to enlarge the membership, and then to fill the vacancies which have been caused by death.

The Academy held a meeting of great interest in December, 1910, at the New Theatre in New York City. This was the second public meeting, the first having been held in Washington in 1909. The President, William Dean Howells, in his opening address defined the scope of the institution. One of the most interesting features of the session was a paper on *Reminiscences of Alexander Dumas*, read by John Bigelow, who shortly before had celebrated his 93d birthday. Mr. William C. Brownell presented the subject of *Criticism*, and Dr. Nicholas Murray Butler made an address on the subject, *The Revolt of the Unfit: Reflections on the Doctrine of Evolution*. At the conclusion of the session the gold medal of the National Institute given annually for work of distinction in some field of art or letters was presented to James Ford Rhodes, the historian, by Dr. Henry van Dyke, the President of the Institute. Other speakers were Percy Mackaye, Hamlin Garland, Loreda Taft, Brander Matthews and William M. Sloane. Hamilton W. Mabie read a series of commemorative papers on members of the Academy who had died during the last few years. The living members in 1910 were as follows:

Edwin Austin Abbey, Charles Francis Adams, Henry Adams, John Bigelow, Edwin Howland Blashfield, William Crary Brownell, John Burroughs, George Washington Cable, George Whitfield Chadwick, William Merritt Chase, Kenyon Cox, Henry van Dyke, Daniel Chester French, Horace Howard Furness, Basil Lanneau Gildersleeve, Arthur Twining Hadley, Thomas Hastings, Thomas Wentworth Higginson, William Dean Howells, Henry James, Robert Underwood Johnson, Henry Cabot Lodge, Thomas Raynesford Lounsbury, Hamilton Wright Mabie, Alfred Thayer Mahan, Brander Matthews, John Muir, Thomas Nelson Page, Horatio William Parker, James Ford Rhodes, Theodore Roosevelt, John Singer Sargent, William Milligan Sloane, Francis Hopkinson Smith, Abbott Handerson

Thayer, Elihu Vedder, Andrew Dickson White, Woodrow Wilson, George Edward Woodberry.

The deceased members are: Thomas Bailey Aldrich, Samuel Langhorne Clemens, Francis Marion Crawford, Richard Watson Gilder, Daniel Coit Gilman, Edward Everett Hale, Joel Chandler Harris, John Hay, Bronson Howard, Joseph Jefferson, Henry Carey Lea, Edward A. MacDowell, Charles Follen McKim, Donald Grant Mitchell, Charles Eliot Norton, Augustus Saint-Gaudens, Carl Schurz, Edmund Clarence Stedman, Mrs. Julia Ward Howe, William Vaughan Moody, John Quincy Adams Ward, Winslow Homer, John La Farge.

**ASBESTOS.** The United States has for years led all other countries in the manufacture of asbestos goods, but the raw asbestos for factories has been almost wholly imported from Canada. According to the United States Geological Survey a change appears to have taken place in this condition, in view of the decided increase in 1909 in the production in the United States of a grade of asbestos which is only comparable to that of 1909. Prior to 1908 all of the asbestos mined in the United States was of the amphibole type, but in 1908 and 1909 the output not only increased four-fold over that of 1907, but the increase was almost wholly in chrysotile asbestos. Apart from the increased production in the United States, the principal feature in 1909 was the combination of interests. A number of chief producers whose mines were located in Canada and largely owned in the United States entered into the formation of The Amalgamated Asbestos Corporation, Limited, and will, it is believed, have a controlling interest in the production and sale of asbestos. The total production in the United States for 1909 was 3065 tons, an increase of more than 200 per cent. over the output of 1908. Practically only two States, Vermont and Georgia, furnished asbestos to commerce during 1909, both with increased production. Georgia furnished the amphibole and Vermont the more valuable chrysotile type, and a small quantity was reported from Idaho and Wyoming.

The value of the imports of asbestos in 1909 was \$1,233,659 of which \$993,278 was for unmanufactured asbestos and \$240,381 for manufactured asbestos. The greater portion of the amount imported was from Canada, but a small amount was imported from Germany, United Kingdom, Russia and Italy.

**FOREIGN PRODUCTION.** There were produced in Canada in 1909 63,349 short tons valued at \$2,284,587. In addition there were produced 23,951 tons of asbestic valued at \$17,188. There were ten companies working in the asbestos district of Canada, with 19 quarries and mills, employing in the summer season over 3000 persons.

Russia is becoming an important producer of asbestos, but owing to difficulties of mining and transportation in the Urals, where the mines occur, only the better grades reach the general markets. The production was about 15,000 short tons in 1909.

The production of asbestos in South Africa showed an increase in 1909. It amounted to about 2000 tons.

Deposits of asbestos are reported to have been found in Australia. A small quantity is mined in Japan, France, Italy, Corsica, Greece, Turkey, and Ceylon.

**ASHANTI.** See GOLD COAST.

**ASHBURNER, WALTER.** See LITERATURE, ENGLISH AND AMERICAN.

**ASHDOWN, Mrs. C. H.** See LITERATURE, ENGLISH AND AMERICAN.

**ASHOKAN RESERVOIR.** See AQUEDUCTS.

**ASIA.** See ANTHROPOLOGY AND ETHNOLOGY.

**ASIA MINOR, EXCAVATIONS IN.** See ARCHAEOLOGY.

**ASQUITH, HERBERT HENRY.** See GREAT BRITAIN.

**ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, AMERICAN.** See ADVANCEMENT OF SCIENCE.

**ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, BRITISH.** See ADVANCEMENT OF SCIENCE.

**ASSOCIATION OF AMERICAN AGRICULTURAL COLLEGES AND EXPERIMENT STATIONS.** See AGRICULTURE EXPERIMENT STATIONS.

**ASSOCIATION OF AMERICAN UNIVERSITIES.** See UNIVERSITIES AND COLLEGES.

**ASSUR, EXCAVATIONS AT.** See ARCHAEOLOGY.

**ASTEROIDS.** See ASTRONOMY.

**ASTOR LIBRARY.** See NEW YORK PUBLIC LIBRARY.

**ASTRONOMY.** The year 1910 will be memorable as the year of Halley's Comet and the Daylight Comet. The expectations of the general public, however, were hardly realized in the case of the former. The photographic exploration of the heavens proceeded with customary vigor, but was not rewarded with so many or such important discoveries as have marked the past few years. The falling off in the number of new minor planets announced was especially noticeable. Among the more striking discoveries of the year were three new stars, *Nova Sagittarii* No. 2, *Nova Aræ*, and *Nova Lacertæ*. The results of the observations on Mars during the opposition of 1909 were made known, and indicated that some remarkable changes had taken place in the configuration of the planet's surface, but the question as to whether the canals are objective or subjective phenomena is still unsettled.

THE CONFERENCE OF THE INTERNATIONAL UNION FOR SOLAR RESEARCH, which was held at Mount Wilson, California, on August 31 and September 1 and 2, was an event of great importance. Among the most important business transacted by the Conference was the establishment of a system of secondary standards of wave-length; a resolution to include the whole field of astrophysics within the scope of the Union's activity was also adopted.

THE SUN. In 1907, Halm published the results of his spectrographic determination of the period of rotation of the sun, and called attention to certain irregularities in the displacement of the spectrum lines at the sun's limb. Some of the lines were found to have suffered a displacement which was independent of that due to the rotation. Professor W. S. Adams, who has been investigating this phenomenon for several years, published the results of his observations with the Mount Wilson 30-foot spectrograph used in connection with the great tower telescope. He found that the lines of scandium, titanium and vanadium were less displaced than those of iron and nickel, and that the lines of elements of very high atomic weight, such as lanthanum and cerium, showed very small displacements. The lines showing small displacements were in general those which

were considerably strengthened at the limb, the intensification being probably a temperature effect. Comparison of laboratory spectra with those of the sun indicated that the relative displacements were caused by pressure, a conclusion which was recently confirmed independently by Perot.

Dr. Nordmann, revising his earlier calculations of the intrinsic brightness of the sun, found for its value 100,500 decimal candles per square centimetre, or only one-third of the value previously found by him.

A total eclipse of the sun took place on May 9. Although Tasmania was the only country passed over by the line of totality, and the conditions for viewing the eclipse were very unfavorable on account of the low altitude of the sun at the instant of totality, Mr. Frank McClean fitted out an expedition for the purpose of observing the eclipse. The expedition, however, was a total failure owing to the unfavorable weather, which completely prevented the observers from seeing the sun.

Very little activity of the solar disc was recorded during the year; the sunspot cycle having apparently settled definitely towards its minimum. However, one large group of spots, the length of which was about one-seventh of the solar diameter, or 120,000 miles, was developed during the latter half of February, but did not persist very long. At one time the group was easily visible to the naked eye. Several groups of moderate size were also observed about the middle of May.

Dr. Frederick Slocum, of the Yerkes Observatory, recorded the appearance of two remarkable prominences on the sun's limb in March and April. The first, which was first seen on March 4, was remarkable from the fact that it lasted until April 28, a period of about fifty-five days. Its height varied between 8000 miles and 50,000 miles. The other prominence was first noticed on March 24 and lasted about 24 hours only; but, during its brief existence, it appears to have been the seat of unexampled activity. When first photographed, it had a height of about 30,000 miles, and rapidly grew until it reached a height of over 200,000 miles, when the whole mass became detached and floated away, leaving no trace.

JUPITER. Attention was directed in the YEAR BOOK for 1909 to Professor Lowell's confirmation of Mr. Scriven Bolton's discovery of a network of wisp-like lacings connecting the north and south equatorial belts. In June, 1910, Professor Lowell announced that similar networks had been observed at his observatory at Flagstaff, Arizona, between all the belts of the planet.

Mr. Scriven Bolton recorded the recurrence of the acceleration of the Red Spot due to the rapid passage of the Great South Tropical Dark Area past the Spot. He also called attention to a new formation on the surface of the planet in the shape of an oblique belt stretching across the whole zone between the S. Temperate and the S. S. Temperate belts.

MARS. The favorable conditions obtaining during the opposition of this planet during 1909 led to a number of important observations and discoveries. The observers, however, are still divided into two camps—those who consider the canals as purely objective phenomena, due possibly to the agency of intelligent beings, and those who look upon them as largely subjective,

and due to the physiological merging of alignments of spots into apparently continuous lines on the planet's surface.

One striking phenomenon, viz., the apparent veiling of the surface of the planet, was noticed by all observers during the earlier part of the opposition. As the result of this veiling, many of the details of the surface could not be distinguished during the summer months. It was suggested by M. Antoniadi, of the Juvisy observatory, that the indistinctness of the markings was caused by the interposition of very light cirrus clouds of yellow color in the atmosphere of the planet. As it seems to be generally conceded that some aqueous vapor is present in the Martian atmosphere, Antoniadi's suggestion would appear to be warranted.

Professor Lowell recorded the occurrence of the first snowfall of the Martian Antarctic region on November 17, 1909, or nearly two months after the summer solstice. Several new canals, notably two lying to the east of the Syrtis Major, were also discovered by him, and their occurrence was later confirmed by several European observers.

An interesting theory as to the origin of the various features of the surface of Mars was published by Krebs in the *Astronomische Nachrichten*. He suggested that the various new features discovered in 1909 were due to volcanic action, and that the network of canals was analogous to the network of seismic and volcanic tectonic lines of the earth's surface.

**NEW STARS.** Three new stars were discovered this year. Two of these, *Nova Sagittarii* No. 2 and *Nora Aræ*, were found by Mrs. Fleming on plates taken at Arequipa during the early part of the year. *Nora Aræ* increased in brilliancy from the twelfth to the sixth magnitude between March 19 and April 4. Its brightness then began to decline, and about the end of the year it was only of the tenth magnitude. The third new star, *Nora Lacertæ*, was discovered by the Rev. T. E. Espin, of Walsingham, England, a few days before the end of the year. When it first appeared, it was possible to observe it with the naked eye, but it soon began to lose in brilliancy.

**COMETS.** The periodic comets due to return in 1910 were Tempel II, D'Arrest's, Swift's (1895 II), Brooks's (1889 V), and Faye's. The discovery of Halley's Comet, which was due to pass through perihelion this year, was noticed in the *YEAR BOOK* for 1909. Of the above comets all but Tempel's and Swift's were reported.

Comet Tempel II, with a period of 5.28 years, was first observed at Milan in July, 1873. It was seen again in 1878, 1894, 1899 and 1904, its last perihelion passage having occurred on November 10, 1904. It should therefore have been seen in February of this year, but failed to reappear.

Swift's Comet (1895 II), with a period of 7.06 years, was also due at perihelion at the beginning of the year, but, owing to its being unfavorably placed for observation, it was not detected.

D'Arrest's Comet, first discovered in 1851, was seen in 1857, 1870, 1877, 1890, and 1897, but, on account of its unfavorable position, was not found in 1903. Its period is 6.67 years. This year it was first detected by M. Gonnessiat at Algiers on August 26. It appeared as a feeble nebulosity with a slight central condensation of the fourteenth magnitude.

Brooks's Comet (1889 V), with a period of 7.1 years, was discovered by Messrs. Aitken and Wilson at Mount Hamilton on September 28. Its magnitude was 13. According to an ephemeris published by Dr. Bauschinger, it was nearest to the earth about the beginning of August, but it will not pass through perihelion until January 8, 1911. This comet is of special interest owing to its having once thrown off four fragments some of which became brighter than the parent body. At the time of its last perihelion passage on December 6, 1903, it was single.

Faye's Comet, originally discovered in November, 1843, made its last perihelion passage on March 19, 1896. Although it had been observed at all of its previous reappearances, it was not seen in 1903. Its period is 7.44 years. Its orbital eccentricity is exceptionally small, and its perihelion distance is great, being about 1.7 times the mean distance of the earth from the sun. It is also remarkable as having been the first comet whose period was determined directly by calculation instead of by comparison with the records of its earlier apparitions. When first observed by Cerulli at Teramo on November 8, it was a body of about the tenth magnitude and had a faint condensation. Its perihelion passage took place on September 15.

The above comets are designated 1910c, 1910d, 1910e, respectively.

Two new comets were discovered: First, 1910a. When first discovered by three railway officials at Kopje, Orange Free State, in the early morning of January 16, this comet already had a head five minutes in diameter, and a well-developed tail, fan-shaped in appearance and about one degree in length. It was distinctly visible to the naked eye. It increased rapidly in brightness until it became as bright as Mercury and could easily be seen when within 4 degrees of the sun. It passed through perihelion on January 17. In a few days it became a brilliant object in the evening sky, but it very soon decreased rapidly in brightness. Owing to a mistake in the telephonic message by which its discovery was announced at Johannesburg, it was at first known as Drake's Comet. It is remarkable that on several previous occasions the reappearance of Halley's Comet has been marked by the apparition of another bright comet. 1910a is known as the Daylight Comet, also as the Worrrell-Innes Comet, after two astronomers who made the first announcement of its position. 1910b, a comet of the eleventh magnitude, was discovered by the Rev. Joel H. Metcalf at Taunton (Mass.) on August 9. It presented no remarkable features, declining rapidly in brightness after discovery.

On February 20, the announcement of the discovery of a new comet, almost coinciding in position with Halley's Comet, was made by M. Pidoux of the Geneva Observatory. No confirmation of the report could be obtained from any other observatory, and the announcement was attributed to some curious mistake on the part of M. Pidoux. During its short life this comet was known as 1910b, the designation afterwards assigned to Metcalf's comet.

Daniel's Comet (1909e), which was at first supposed to belong to the family of comets associated with the planet Uranus was shown on closer observation to belong to the Jovian family of short period comets.

**HALLEY'S COMET.** As already recorded in the YEAR BOOK for 1909, Halley's comet was first detected photographically by Wolf at Heidelberg on September 11, 1909, almost exactly in the position predicted by the English astronomers, Cowell and Crommelin. It was not until more than a month later that it was observed visually.

The past apparitions of the comet have been so often associated with events of world-wide importance, and on several occasions it has been such a brilliant object in the heavens, that popular interest became greatly aroused in anticipation of the present reappearance. Observations of the spectrum of the comet showed the presence of cyanogen in the tail, so that when it was announced that the comet would probably transit across the sun's disc on May 18 and that it would approach so close to the earth that the latter would probably be enveloped by the tail, a good deal of fear on the part of the more ignorant was excited, and many curious devices for escaping the deadly cyanogen gas were reported.

During January, photographs taken at the Lick Observatory showed the presence of a tail about a degree in length. At the beginning of February, there was a very fine sharp nucleus of stellar form and the tail formed a narrow sharply-defined cone. A little later, probably owing to a sudden burst of activity, the tail consisted of several fine streamers radiating from the head. By the middle of February, the comet had increased in brightness to such an extent that it could be distinguished with the naked eye. During the latter part of March and the first two weeks of April, it was so near the sun as viewed from the earth that it was invisible. When it became visible again, it was situated in the morning sky. It passed through perihelion on April 19, at which time the head appeared about as bright as a star of the second magnitude. As the date of its transit across the sun's disc approached, the comet increased in brightness, and the tail lengthened until on May 13 it stretched through an arc of forty degrees. In spite of the most elaborate preparations for the observation of the transit, the head of the comet could not be detected as it passed over the sun's disc. On May 19, it was confidently expected that the comet would be seen in the evening sky, but Professor Barnard reported that he saw the tail shortly before sunrise. Stretching through an arc of more than 100 degrees, it presented a glorious spectacle. It was not until May 20 that the comet appeared in the west, and it was then so diminished in size and splendor that it proved to be a great disappointment to the many who had waited until then to see it. The weight of evidence is in favor of supposing that the tail was so greatly curved that its passage past the earth was delayed by from 40 to 60 hours. As by that time the earth was some four million miles south of the plane of the comet's orbit, it is extremely probable that the tail did not envelop the earth at all, or at least only in its outer portion. After May 20 the comet lingered in the sky for a few weeks as a naked-eye object, but it soon became too faint to be distinguished except with the aid of a telescope. The attempt to connect the comet with terrestrial phenomena occurring during its transit failed. See article on METEOROLOGY.

Considering the long period—some 2000

years—during which the comet has returned regularly to the sky, it is highly probable that the nucleus contains a large amount of solid matter, for only a solid could lose the amount of matter which must have been poured forth by the head of the comet during that time. The solid matter must, however, be in comparatively small masses, for otherwise it would have been visible while crossing the sun's disc.

A series of photographs of the comet taken about May 23 by Professor Lowell showed the presence of four knot-like formations in the tail which were probably due to separate outbursts of energy. Measurements from plates taken at different times showed that these knots were moving away from the head at the rate of 13.6, 17.2, 19.7 and 29.7 miles per second respectively, showing that the velocities of the particles as they receded were being accelerated.

The following list gives the recorder returns of Halley's comet, with the dates of perihelion passage as computed by Cowell and Crommelin:

B. C.	240	May 15	A. D.	912	July 20
	163	May 20		989	Oct. 9
	87	Aug. 15		1066	Mar. 27
	12	Oct. 8		1145	Apr. 6
A. D.	66	Jan. 26		1222	Sept. 10
	141	Mar. 25		1301	Oct. 22
	218	Apr. 6		1378	Nov. 8
	295	Apr. 7		1456	June 8
	373	Nov. 17		1531	Aug. 25
	451	July 3		1607	Oct. 26
	530	Nov. 15		1682	Sept. 14
	607	Mar. 26		1759	Mar. 12
	684	Nov. 26		1835	Nov. 15
	760	June 15		1910	Apr. 19
	837	Feb. 25			

It is worthy of note that the period of revolution just completed was the shortest of record.

**COMETS' TAILS.** The well-known fact that, in the neighborhood of perihelion, the tail of a comet is directed away from the sun led Kepler, almost three hundred years ago, to the idea that the tail was due to a pressure exerted by the sun's rays upon the vapors given out by the head of the comet. Additional weight was given later to the idea by Fitzgerald who sought to explain the repulsive effect by Maxwell's light-pressure. In so doing, he considered that the gaseous molecules behaved in respect to light waves like absolutely black spheres of considerable size. It was shown by Schwarzschild, however, that for small spheres diffraction would become significant, and he calculated the effect of the pressure of light on small perfectly reflecting spheres. The general problem was solved by Debye, so that it became possible to submit the effect of light-pressure on cosmical dust, first suggested by Arrhenius, to accurate quantitative measurement. This was done by the American physicists, Nichols and Hull, in masterly experiments. From its spectroscopic behavior, however, it is evident that the matter in a comet's tail does not consist of small solid particles, but of separate fluorescing gaseous molecules, which must be treated as resonators with selective absorption. By a series of very ingenious and delicate experiments, which he described in the *Astrophysical Journal*, Lebedew succeeded in showing that a translatory force is exerted by a beam of light upon a gas, and that it is directly proportional to the amount of incident energy and to the coefficient of absorp-



**HALLEY'S COMET**

Copyright by Van der Weyde, New York

৯৭৬

tion of the gas. Although the numerical values found for gases at atmospheric pressure cannot be applied directly to such extremely tenuous gases as are known to exist in the tails of comets, still they form a striking confirmation of the theory and afford a basis for its further elaboration.

**MINOR PLANETS.** The extraordinary activity in the photographic exploration of the heavens, which resulted in the discovery of between three and four hundred minor planets during the years 1903, 1907 and 1908, appears to have well nigh exhausted the number discoverable in this way. In 1909 the number of minor planets announced as new amounted to only 92, or about fifty short of the number announced in 1908. The year 1910 witnessed a still further reduction in the number of discoveries, only 46 having been reported. These were provisionally designated by the letters JH to LC. Of the total number, 23 were reported from the Königstuhl Observatory, Heidelberg, by Professor Max Wolf (3) and his assistants, Helffrich (17), and Ernst (3). Of the remaining 23, no less than 16 fell to the share of the Rev. Joel Metcalf of Taunton (Mass), four to Cerulli of Teramo, and one each to Palisa of Vienna, Baillaud of Paris, and Davidson of Greenwich. Of the three discoveries by Wolf, two, JL and JN, were found to be identical with (294) *Felicia* and (273) *Atropos* respectively, while two of those announced by Cerulli, viz., KR and KZ, proved to be (216) *Kleopatra* and (62) *Erato*, respectively. KY, reported by Metcalf, was doubtfully identified with (580) 1905 SE. The number of new discoveries not certainly identified with the discoveries of previous years was therefore 42. From past experience some of these will in all probability prove to be bodies already known, but it is beyond doubt that the total number of known minor planets is now considerably in excess of seven hundred.

Permanent numbers ranging from 675 to 691 were assigned to the following minor planets:

1908 DU (=675).

1909 FN (=676). FR, FS, FY (*Pax*), GW, GZ, HA, HC, HD, HE, HF, HG (*Tinette*), HH (*Mélanie*), HJ, HZ (*Wratislavia*), JG (=691, *Lehigh*).

In addition to the planets in the above list which have been named, the following have also received names: (671) 1908 DV=*Carnegie*, 1908 CS=*Nesstor*, and 1910 KU=*Interamnia*.

1909 HL has been identified with (138) *Tolosa*.

**MOUNT WILSON SOLAR OBSERVATORY.** Professor George E. Hale, in his annual report to the Carnegie Institute of the work accomplished at this observatory, gave a summary of the principal results obtained by himself and his assistants. Among the more noteworthy of these results may be mentioned the following: The existence of magnetic fields in sunspots, to which reference was made in the YEAR BOOK for 1908, has been established beyond doubt through the detection of all the characteristic phenomena of the Zeeman effect. These magnetic fields are in all probability due to the rapid revolution of electrically-charged particles in the sunspots, which thus form electrical vortices. The rotation in these vortices was found to be in opposite directions in the northern and southern hemispheres, although some exceptions to the rule were detected. A new index to the solar activity was obtained

from the areas of the calcium flocculi as determined by the spectroheliograph. These, when compared with the simultaneous variations in the earth's magnetic intensity, gave reason for supposing that there was some general relationship between the solar activity and the terrestrial magnetic activity, but no quantitative relationship could be detected. It was found that the "flash" spectrum, of the lower chromosphere, hitherto photographed only during a total eclipse of the sun, could be photographed in full sunlight, whenever the instrumental and atmospheric conditions were favorable, with the 30-foot spectroheliograph of the tower telescope. On account of the high dispersive power of this instrument, a far higher degree of accuracy than has been possible from eclipse observations has been obtained in the measurements of the wave-lengths of the lines.

The performance of the 60-inch reflector, which was completed and first used for visual and photographic observation in December, 1908, was found to surpass all expectations. Photographs of nebulae made with it brought out many details hitherto undetected, notably a remarkable spiral structure near the center of the Great Nebula in Andromeda. This nebula was found to give a distinct solar spectrum, and, as it is known to be enormously distant, it was suggested that it consisted possibly of a countless swarm of solar stars, so closely crowded together as to be indistinguishable with any telescope. Other investigations on the *Andromeda* nebula and on distant star clusters confirmed Kapteyn's observation that there exists a selective absorption of light in space, violet light being slightly more absorbed than red light as it is transmitted through space. The degree of redness, as expressed by the difference in brightness estimated photographically and visually, was found to increase by one per cent. (equivalent to a stellar magnitude of nine thousandths) for a distance of 100 light years. As the results obtained with the *Andromeda* nebula and with three star-clusters were of entirely different orders of magnitude, the estimation in this way of the relative distances of objects whose parallaxes and proper motions are too small to be detected seems to be one of the possibilities of the near future. Photographs of stellar spectra made with an 18-foot spectrograph and the 60-inch reflector, were on a sufficient scale to permit the determination of the pressure in the atmosphere of Arcturus. Observations on the spectrum of the zodiacal light showed strong evidence in support of the theory that the light is merely reflected sunlight.

**INTERNATIONAL UNION FOR COÖPERATION IN SOLAR RESEARCH.** The fourth meeting of the Union was held at Mount Wilson, California, on August 31, and September 1 and 2, under the auspices of the Solar Observatory of the Carnegie Institution. It was attended by a large number of the leading astronomers and solar physicists of both Europe and America. The business of the meeting was devoted chiefly to the discussion and adoption of the reports of the various committees. Of first importance was the report of the committee on the determination of standard wave-lengths. This committee, adopting as its primary standard the wave-length of the red cadmium line as determined by Michelson and more recently confirmed by Fabry and Perot, has established a

system of secondary standards of extreme precision, and has taken steps for the immediate determination of a set of intermediate tertiary standards which may be relied upon for comparison or interpolation by observers even when using prismatic dispersion. It was recommended that, in the region of the spectrum in which three independent measurements by the interferometre method, are available, i. e., between  $\lambda 4282$  and  $\lambda 6494$ , the arithmetic mean of the three measurements should be adopted as a definite international standard of the second order, provided that there is sufficient agreement between them. In this way, a list of forty-nine secondary standards was made up, the values adopted being based upon the determinations of Fabry and Buisson at Marseilles, Eversheim at Bonn and Pfungst at Baltimore. As an indication of the degree of accuracy attained, it may be mentioned that the average differences of the three determinations were, in most cases, not more than one part in a million. In the neighborhood of the sodium line, where the character of the iron lines is not satisfactory, the use of certain barium lines as additional standards was proposed. It also recommended that the secondary system be extended so as to include lines of longer and shorter wave-length than those included in the region referred to above. The new system of standards will be known as the International System, the unit on which it is based being called the "international Ångström" (I. A.), as defined by the conference of 1907. The committee on the investigation of sun-spot spectra recommended that, notwithstanding the progress of photographic work in this field, visual observations of spot spectra should be continued upon a revised and extended plan. Other important recommendations were made by the committee on measurement of solar radiation, on the determination of solar rotation by means of the displacement of lines, on the organization of eclipse observations, and on spectroheliograph work. It was voted to extend the scope of the Union's activity so as to include general astrophysics. The next conference of the Union will be held at Bonn in 1913.

**MOTION OF THE SOLAR SYSTEM.** In a contribution to the *Astrophysical Journal*, Professors Frost and Kapteyn discussed the sun's velocity through space as derived from the radial velocities of Orion stars. They found evidence of the two streams of stars which for some years have been the subject of the researches of Kapteyn and others. The velocity relative to the stars near the apex was found to be 18.38 km. per second, while relative to the stars near the antapex, it was 28.38 km. per second. The mean of the two velocities was 23.3 km. per second.

Professor Boss published the results of his investigation of the proper motions of more than 5000 stars uniformly distributed over the whole sky, and deduced therefrom the position of the solar apex. This was found to be in R. A., 270.52°, decl. = +34.28° for the epoch 1875. By making other selections of stars, such as those of different magnitudes, or of proper motion, he found no sensible modification of these values. Professor Boss claimed that his results strongly discounted the idea of there being two great definite streams as held by Kapteyn, Eddington, Dyson and others, and that the motions of the stars are quite haphazard in their distribution.

**OTHER EVENTS.** The Janssen Medal of the French Academy of Sciences was awarded to Professor W. W. Campbell of the Lick Observatory for his spectroscopic discoveries and his numerous investigations in that branch of astronomy.

**BOOKS.** Among the more important works published during 1910 may be mentioned the following: Lowell, *The Evolution of Worlds*; Newcomb, *Popular Astronomy*; Mason, Smith and Elkins, *Parallax Investigations*; Perrine, *Determination of the Solar Parallax*; Dyson, *Astronomy, A Handy Manual*; Brown, *Halley's Comet; Its History*.

**ASTROPHYSICS.** See ASTRONOMY.

**ATHENS.** See ARCHÆOLOGY.

**ATHLETICS.** **TRACK AND FIELD.** Several new records were made in track athletics in 1910. The best work was done by the two runners—George V. Bonhag and Melvin W. Sheppard, both members of the Irish-American A. C. Between them they set up new figures for nearly every distance from 500 yards to 5 miles. The majority of these distances are not regarded as "standard," as they do not usually appear on athletic programmes. Sheppard's most notable feat was the running of 1000 yards in 2 minutes 12 2-5 seconds, excelling by 3-5 seconds the time made by "Lon" Meyers in 1881. Bonhag's best performance was on the indoor tracks. He ran 2 miles in the record time of 9 minutes 14 1-5 seconds. T. S. Berna of Cornell University ran the same distance out doors in 9 minutes 26 3-5 seconds, also establishing new figures. Among the sprinters, the best showing was that of R. C. Craig of the University of Michigan, who at the intercollegiate games held at Philadelphia covered 220 yards in 21 1-5 seconds, equalling the world's record made by B. J. Wefers in 1896. Leland S. Scott of Stanford, Cal., raised the pole vault record for height to 12 feet 10 7-8 inches and M. J. McGrath threw the 56-pound weight to a height of 16 feet 6 1-4 inches.

The senior championships of the American Athletic Union were held at New Orleans on October 14 and 15. The Irish-American A. C. of New York won, scoring 49 points as against 48 totalled by the New York A. C. Other teams and their scores were: Chicago A. A., 18 points; Olympic A. C., San Francisco, 9; and Illinois A. C., Chicago, 6. The Irish-American A. C. was also victorious in the junior championships, held at the same place and time, with a total of 51 points. The Chicago A. A. finished second. The contest for the all-round championship of the Union took place at Chicago on August 13. It was won by F. C. Thomson of Los Angeles, who scored a total of 6991 points. The record for this event is held by Martin J. Sheridan, who in 1909, made 7385 points.

The thirty-fifth annual track and field meet of the Inter-Collegiate Amateur Athletic Association was held on Franklin Field, Philadelphia, on May 27 and 28. The largest number of points was scored by the University of Pennsylvania, which had a total of 27 1/2. Yale was a close second with 25 1-2 while Michigan took third place with 20. Other colleges scoring points were: Princeton, 17; Cornell, 14; Harvard, 13 1-2; Syracuse, 8; Amherst, 6; Brown, 3; Dartmouth, 3; Columbia, 2 1-2; and New York University, Bowdoin and Wesleyan 1 each. Only one new record was made, that being the per-

formance of R. C. Craig in the 220 yard run, which has already been referred to and which bettered the former intercollegiate figures by 1-5 second.

The University of Notre Dame won the tenth annual meeting of the conference colleges, held at Champaign, Ill., on June 4, scoring 29 points. Other point winners were Leland Stanford, 17; Chicago, 13; Illinois, 12; California, 12; Washington, 10; Oberlin, 10; Wisconsin, 9; Minnesota, 5; Kansas, 5; Iowa, 3; Colorado College, 3; Western Reserve, 2; South Dakota, 1.

A noteworthy feature of the English championships which were held at Stamford Bridge, London, on July 2, was the showing made by F. L. Ramsdell, the University of Pennsylvania athlete, who captured both the 100-yard dash and the 220-yard run. Another outsider, K. de Szathmary of Hungary, won the pole vault contest. Of interest abroad also was the international meeting between athletes representing Scotland and Ireland, which took place at Ibrox Park, Glasgow, Scotland. Of the eleven events contested, Scotland was the victor in nine.

**ATLANTIC COAST CANAL.** See CANALS.

**ATMOSPHERE.** See METEOROLOGY.

**ATTENTION.** See PSYCHOLOGY.

**ATOMIC WEIGHTS.** In the fall of 1910 the International Committee on Atomic Weights adopted the following values for general use during the year 1911:

Element.	Symbol.	Atomic weight.
Aluminum	Al	27.1
Antimony	Sb	120.2
Argon	A	39.88
Arsenic	As	74.96
Barium	Ba	137.37
Bismuth	Bi	208.0
Boron	B	11.0
Bromine	Br	79.92
Cadmium	Cd	112.40
Cæsium	Cs	132.81
Calcium	Ca	40.09
Carbon	C	12.00
Cerium	Ce	140.25
Chlorine	Cl	35.46
Chromium	Cr	52.0
Cobalt	Co	58.97
Columbium	Cb	93.5
Copper	Cu	63.57
Dysprosium	Dy	162.5
Erbium	Er	167.4
Europium	Eu	152.0
Fluorine	F	19.0
Gadolinium	Gd	157.3
Gallium	Ga	69.9
Germanium	Ge	72.5
Glucinum	Gl	9.1
Gold	Au	197.2
Helium	He	3.99
Hydrogen	H	1.008
Indium	In	114.8
Iodine	I	126.92
Iridium	Ir	193.1
Iron	Fe	55.85
Krypton	Kr	82.92
Lanthanum	La	139.0
Lead	Pb	207.10
Lithium	Li	6.94
Lutecium	Lu	174.0
Magnesium	Mg	24.32
Manganese	Mn	54.93
Mercury	Hg	200.0
Molybdenum	Mo	96.0

Neodymium	Nd	144.3
Neon	Ne	20.2
Nickel	Ni	58.68
Nitrogen	N	14.01
Osmium	Os	190.9
Oxygen	O	16.00
Palladium	Pd	106.7
Phosphorus	P	31.04
Platinum	Pt	195.2
Potassium	K	39.10
Praseodymium	Pr	140.6
Radium	Ra	226.4
Rhodium	Rh	102.9
Rubidium	Rb	85.45
Ruthenium	Ru	101.7
Samarium	Sa	150.4
Scandium	Sc	44.1
Selenium	Se	79.2
Silicon	Si	28.3
Silver	Ag	107.88
Sodium	Na	23.00
Strontium	Sr	87.63
Sulphur	S	32.07
Tantalum	Ta	181.0
Tellurium	Te	127.5*
Terbium	Tb	159.2
Thallium	Tl	204.0
Thorium	Th	232.4
Thulium	Tm	168.5
Tin	Sn	119.0
Titanium	Ti	48.1
Tungsten	W	184.0
Uranium	U	238.5
Vanadium	V	51.06
Xenon	Xe	130.2
Ytterbium (Neoytterbium)	Yb	172.0
Yttrium	Yt	89.0
Zinc	Zn	65.37
Zirconium	Zr	90.6

\* Browning's and Flint's investigations led to their announcement in 1910 of 124.3 as the final figure, but at the September meeting of the International Committee on Atomic Weights it was decided that this required further corroboration and that the old figures should be used during 1911.

**AUCKLAND, N. Z.** See BRIDGES.

**AUCKLAND PIER.** See DOCKS AND HARBOURS.

**AUSTIN, H. H.** See LITERATURE, ENGLISH AND AMERICAN, section *Travel and Description*.

**AUSTRALIA, COMMONWEALTH OF.** A British dependency consisting of a federation of six original states. The temporary seat of the Federal government is Melbourne, Victoria. The permanent capital will be laid out at Canberra in the state of New South Wales.

**AREA AND POPULATION.** The estimated area of the commonwealth in square miles and the population (exclusive of aborigines), according to the census of March 31, 1901, and the latest estimates available, are shown in the following table, by states:

States	Sq. mi.	Pop., '01	Pop., '09-'10
New South Wales	310,372	1,354,846	1,662,367*
Victoria	87,884	1,201,070	1,297,557†
Queensland	670,500	498,129	578,548†
South Australia	903,690	363,157	412,808†
Western Australia	975,920	184,124	282,856*
Tasmania	26,215	172,475	186,860†
Commonwealth	2,974,681	3,773,801	4,421,000†

\* June 30, 1910. † Dec. 31, 1909. ‡ On Dec. 31, 1909, 4,374,138.

The aborigines are thought to number about 30,000. Capital cities, with estimated population, including suburbs, December 31, 1909: Sydney, N. S. W., 605,900; Melbourne, Victoria, 562,300; Adelaide, S. A., 184,393; Brisbane, Q., 143,077; Perth, W. A., about 55,000; Hobart, T., about 45,000. Population of other cities, with suburbs (1908): Newcastle, N. S. W., 64,270; Ballarat, V., 48,063; Bendigo, V., 44,510; Broken Hill, N. S. W., 41,610; Geelong, V., 28,361; Launceston, T., 24,536; Charters Towers, Q., 20,976. In the table above, the figures for South Australia include those of the Northern Territory (est. area, 523,620 square miles; est. population December 31, 1908, 3360). In 1910 the Federal Parliament passed a bill providing for the transference of the Northern Territory from the jurisdiction of South Australia to that of the Commonwealth and pledging the Federal government to build a railway connecting the South Australian system with Port Darwin. The territory of Papua (q. v.), or British New Guinea, is an Australian dependency.

For 1908 the number of births, deaths, and marriages and the excess of arrivals over departures were as follows:

	Births	Deaths	Mar.	Exc. A.
N. S. W.....	42,525	16,090	12,642	12,906
Vict. ....	31,101	15,767	9,334	—1,751
Qu. ....	14,828	5,680	4,909	3,276
So. A. ....	9,756	3,834	3,112	1,209
No. T. ....	34	83	10	—155
W. A. ....	7,754	2,882	2,012	2,105
Tas. ....	5,616	2,129	1,432	—1,669
Total .....	111,613	46,465	32,551	15,921

Totals for 1909: Births, 114,071; deaths, 44,172; marriages, 33,775; excess of arrivals over departures, 28,933.

**EDUCATION.** Public education is under the control of the separate states. Primary instruction is free and compulsory. The statistics by states are as follows:

*New South Wales* (1909): State schools, 3215, with an enrollment of 238,514 pupils and an average attendance of 160,080. State expenditure on education, science, and art, £1,314,402. The University of Sydney, with 1324 students, in 1909 receives a state subsidy. Private schools, 789, with 58,361 pupils; 18 schools not included above, with 1721 pupils; and various business schools. *Victoria* (1908): State schools, 2017; enrollment, 233,893; expenditure (1908-9), £963,615. There are various institutions for special and technical instruction, and the University of Melbourne, with 1059 students in 1909. *Queensland* (1909): Public schools, 1164; teachers, 2521; enrollment, 106,772; average attendance, 69,755; expenditure, £361,053. Grammar schools, 10; teachers, 69; pupils, 1218; government aid, £10,354. Private schools, 158; teachers, 688; pupils, 14,745; average attendance, 12,579. *South Australia* (1909): State schools, 690; teachers, 1438; enrollment, 59,622; expenditure, £161,146. Private schools, 200; teachers, 718; pupils, 9321. The University of Adelaide had 697 students in 1909. *Western Australia* (1908): State schools, 423; enrollment, 30,010. There are a few technical schools, etc. State expenditure (1909-10), £184,694. Private schools (1907), 102; enrollment, 7639. *Tasmania* (1908): State

schools, 365; enrollment, 27,760; private primary schools (1907), 204; enrollment, 8630. There are a number of superior and technical schools.

**MINERALS.** Australia is rich in many minerals and ores, but her gold production is of preponderating importance. The output of gold in 1909 and from the beginning of gold mining to the end of that year was as follows: New South Wales, £869,546, and from 1851, £57,189,272; Victoria, £2,778,956 and, from 1851, £285,100,389; Queensland, £1,935,178 and £70,225,250; Western Australia, about £6,773,500 and, from 1886, about £91,741,900. Gold production in 1908: N. S. W., 224,792 fine oz., valued at £954,854; V., 670,910 oz., £2,849,838; Q., 465,085 oz., £1,978,554; W. A., 1,647,911 oz., £6,999,882; S. A. proper, 2898 oz., £12,300; Northern Territory, 5644 oz., £23,943; Tasmania, 57,085 oz., £242,482; total Commonwealth, 3,074,325 oz., £13,058,853; total in 1909, 2,961,665 oz.

Mining statistics by States: *New South Wales* (1909). Total value of minerals raised, £7,403,210, of which coal accounted for £2,618,596, silver, silver-lead, and ore £1,653,615, and gold £869,546. *Victoria* (1908). Total value, £3,031,044 (gold £2,849,838, coal £64,953); total value to end of 1908, £289,019,563 (gold £282,321,433). *Queensland* (1909). Total value £3,656,564 (gold £1,935,178, copper £853,196, coal £270,726, tin £244,927, silver £99,093, lead £68,543); total in 1908, £3,844,487 (gold £1,975,554, copper £882,901, tin £342,191). *Western Australia*. Various ores occur, but the only mining of great importance is that of gold, notably at the Coolgardie group of mines. Gold production in 1908, 1,647,911 oz.; 1909, 1,595,269 oz.; first seven months of 1910, 855,372 oz.; total, from 1886, 22,460,339 oz. *South Australia*. Copper, gold, silver, lead, coal and other minerals occur. Total production in 1907, £913,863 (copper £714,525, gold £36,602). Gold in 1908, £36,243. *Tasmania*. The most important minerals are shown in the following export values for 1908: Copper, £545,327; tin, £400,196; silver, £370,477; gold, £292,691.

**AGRICULTURE.** Land under tillage, exclusive of grass-grown lands, in the year 1908-9: New South Wales, 2,713,971 acres; Victoria, 4,496,183; Queensland (1908), 650,472; South Australia proper, 3,442,295; Western Australia (1908), 494,987; total, 12,067,354. The following tables show the acreage and production of the principal crops in 1908-9 (for Queensland the calendar year 1908):

	Wheat		Oats	
	Acres	Bu.	Acres	Bu.
N. S. W.....	1,394,056	15,483,276	59,881	1,119,113
Vict. ....	1,779,905	23,345,649	419,869	11,124,940
Qu. ....	80,898	1,202,799	1,797	38,811
S. A. ....	1,693,501	19,397,672	78,494	1,280,235
W. A. ....	284,357	2,457,483	59,435	741,261
Tas. ....	29,103	719,135	56,654	1,733,046
Total ....	5,261,920	62,606,014	676,130	16,037,406

	Barley		Corn	
	Acres	Bu.	Acres	Bu.
N. S. W.....	9,520	166,538	180,812	5,216,038
Vict. ....	64,648	1,511,181	14,044	650,462
Qu. ....	7,385	137,667	127,655	2,767,600
S. A. ....	44,911	825,740	1,223	19,043
W. A. ....	7,308	74,433	181	2,136
Tas. ....	6,475	173,400	.....	.....
Total ....	140,247	2,889,959	323,873	8,655,279

Livestock, December 31, 1908 (for Victoria, March 31, 1909):

	Horses	Cattle	Sheep	Swine
N. S. W. ....	591,045	2,955,884	43,329,947	215,882
Vict. ....	424,903	1,574,162	12,545,742	179,368
Qu. ....	519,969	4,321,600	18,348,851	124,749
S. A. ....	213,285	340,376	6,898,451	78,454
N. T. ....	21,751	407,992	54,048	2,711
W. A. ....	116,850	742,110	4,098,519	46,673
Tas. ....	39,281	206,827	1,728,503	47,945
	2,927,184	10,547,951	87,044,061	695,772

The production of butter in the Commonwealth in the year 1909-10 is stated at 153,730-522 pounds; cheese, 15,712,141; the wool export, at 677,195,061 pounds.

Potatoes, 128,631 acres, 396,920 tons (Vic., 152,840; Tas., 117,786); hay, about 2,446,500 acres, about 3,096,915 tons; vines, about 61,000 acres, about 6,537,000 gals. of wine; green forage, 871,728 acres. The following figures, subject to slight revision, show production in the Commonwealth in the year 1909-10: Wheat, 90,413,597 bushels (acreage, 6,580,473); oats, 14,716,345 bu.; corn, 10,658,393 bu.; hay, 3,150,000 tons; potatoes, 378,877 tons; sugar-cane, 1,294,575 tons

Some details by States are: *New South Wales*. In 1909-10, 3,174,691 acres were under cultivation, the chief products being: Wheat, 28,532,029 bu.; corn, 6,986,000; oats, 1,966,186; potatoes, 89,000 tons; tobacco, 6494 cwt.; sugar-cane, 131,081 tons; citrus fruits, 654,001 cases; wine (1909), 736,262 gals. Livestock (December 31, 1909): 604,776 horses; 794,543 dairy cattle; 2,223,161 other cattle; 46,187,678 sheep; 237,849 swine. Animal products (1909): Wool, 370,808,000 lbs. (stated as in the grease), valued at £13,128,000; tallow, 638,400 cwt., £795,700; butter, 62,865,608 lbs.; cheese, 4,775,268 lbs. *Victoria*. In 1909-10: Under cultivation, 4,834,285 acres (2,097,162 wheat, 384,226 oats, 864,359 hay); wheat yield, about 28,940,000 bu.; wine, 991,941 gals. Figures for various crops, not given in above tables, for 1908-9: Rye, 32,504 bu.; peas and beans, 197,807 bu.; potatoes, 152,840 tons; onions, 487,680 cwt.; hay, 1,415,746 tons; 561,679 cwt. (205,300 for wine); wine, 1,437,106 gals. Livestock, March 31, 1910: 442,829 horses; 625,063 dairy cows (producing during the year past 55,166,555 lbs. butter and 5,025,834 cheese; other cattle, 924,577; sheep, 12,937,983; swine, 217,921. Slaughter in 1908: 3,309,865 sheep and lambs, 279,710 cattle and calves, 225,162 swine. Wool production, 88,434,296 lbs. in 1906-7, 93,082,341 in 1907-8, 87,536,451 in 1908-9 (stated as in the grease). *Queensland*. The following figures relate to the calendar year 1909. Under cultivation, 738,447 acres (of which 131,657 fallow); wheat, 117,160 acres, 1,571,589 bu.; corn, 132,313 acres, 2,508,761 bu.; potatoes (about one-half sweet), 10,706 acres, 26,576 tons; sugar-cane, 128,178 acres (of which 80,095 crushed), 1,163,569 tons of cane, 134,584 tons of sugar (151,098 in 1908); bananas, 4994 acres, 1,396,567 bunches; pine-apples, 2161 acres, 712,474 doz.; oranges, 3298 acres, 396,599 bu. Livestock: 555,613 horses, 4,711,782 cattle, 19,593,791 sheep, 124,803 swine. Wool production, 129,668,298 lbs. (stated as in the grease). Slaughter, 185,220 cattle, 553,742 sheep, 9514 calves, 12,118 lambs, 37,205 swine. *South Australia*. Area under cultivation in the

year 1909-10, 3,754,094 acres (of which 1,395,798 were wheat, 424,448 hay, 85,346 oats, 41,895 barley, 8131 potatoes, 20,353 vines, 1,198,450 fallow). Wheat yield, 25,133,851 bu. Wine export (1909), 1,045,678 gals. Various fruits are produced. Wool export (1909), 46,523,849 lbs. *Western Australia*. This State owes its development chiefly to the gold mines, and its agriculture is hardly comparable with that of the states treated above. The wheat acreage, however, increased from 284,357 in 1908-9 to 448,918 in 1909-10. Tasmania. Figures for acreage and production in 1910 are not available. In the preceding year 269,446 acres were under crop, and 491,423 under artificially sown grass.

COMMERCE. Imports and exports of the Commonwealth have been valued as follows:

	1904	1908	1909
Imports .....	£37,020,842	£49,786,798	£51,171,896
Exps. domestic .....	55,100,167	62,118,903	.....
Exps. foreign .....	2,385,748	2,192,155	.....
Exps. total ....	57,486,919	64,311,058	65,318,836

The total imports and exports in 1907 were valued at £51,809,033 and £72,824,247 respectively. Leading imports in 1907 and 1908:

	1907	1908
Metal manufactures .....	£5,004,983	£4,948,342
Cottons and linens .....	3,626,658	8,270,147
Machinery, etc. ....	2,760,211	2,587,253
Apparel, etc. ....	3,255,058	2,381,520
Iron and steel .....	2,388,697	2,267,983
Woolens .....	2,349,285	2,006,880
Drugs, chemicals, etc. ....	1,840,933	1,916,680
Timber .....	1,632,055	1,894,340
Silks (incl. velvets) .....	1,753,908	1,812,786
Paper .....	1,233,504	1,383,449
Oils .....	1,049,491	1,036,652
Spirits .....	1,023,984	1,028,825
Sacks, etc. ....	1,113,197	988,166
Tea .....	1,152,727	972,756
Gold bullion .....	1,426,827	950,575
Ry. iron, rails, etc. ....	628,931	792,928
Tobacco .....	753,809	778,314

The more important exports in 1907 and 1908 were valued as follows:

	1907	1908
Wool .....	£28,391,830	£22,914,236
Gold specie .....	5,411,572	10,438,665
Wheat .....	4,801,722	3,098,591
Butter .....	2,890,261	2,387,450
Copper and ore .....	3,601,812	2,223,544
Gold in matte .....	.....	2,218,859
Skins and hides .....	2,782,805	2,195,053
Gold bullion .....	4,036,067	1,670,314
Spelter, etc. ....	1,478,664	1,512,328
Coal .....	1,299,052	1,348,926
Lead—pig and in matte ..	1,549,022	1,346,488
Mutton .....	1,377,502	1,219,107
Silver bullion .....	1,191,907	1,076,069
Flour .....	1,296,252	1,034,308
Tin and ore .....	1,444,953	1,023,440
Timber .....	776,921	1,017,548
Silver in matte and ore ..	.....	987,415
Tallow .....	1,017,047	785,996
Leather .....	526,229	532,782

For 1909 figures (subject to revision) for the largest exports are: Wool, £25,483,112; gold, £8,950,051; wheat and flour, £7,858,164.

Imports from and exports to the country commercially most important, in thousands of pounds sterling:

	Imports		Exports	
	1907	1908	1907	1908
Great Britain...	31,906	29,931	33,976	29,476
United States...	5,869	6,040	2,405	2,395
Germany .....	3,551	3,509	5,140	9,270
New Zealand ..	2,585	2,277	2,565	2,258
British India...	1,949	1,630	2,494	1,813
Belgium .....	1,000	970	5,716	3,704
Ceylon .....	725	684	3,962	1,613
Japan .....	541	544	706	1,268
France .....	487	480	8,149	5,152
Straits .....				576
Canada .....		321		79
Norway .....		315		21
Java .....	222	316	275	260
Hongkong .....		248		757
Italy .....		231		839
South Africa...		191		1,180
Total, incl. other..	51,809	49,787	72,824	64,311

Share of the states in foreign trade, in thousands of pounds sterling:

States	Imports		Exports	
	1907	1908	1907	1908
N. S. W.....	20,860	19,816	29,364	23,721
Vict. ....	17,101	16,433	15,924	14,155
Qu. ....	4,617	4,516	7,118	6,961
S. A. ....	4,815	4,972	9,270	8,861
W. A. ....	3,588	3,212	8,592	8,530
Tas. ....	827	837	2,556	2,084
	51,809	49,787	72,824	64,311

Imports and exports, including interstate trade, of the states, in thousands of pounds sterling:

States	Imports		Exports	
	1907	1908	1907	1908
N. S. W.....	39,466	37,643	48,775	40,986
Vict. ....	28,198	27,198	28,735	27,196
Qu. ....	9,430	9,471	14,684	12,195
S. A. ....	12,120	11,231	13,899	13,779
W. A. ....	6,523	6,178	9,905	9,518
Tas. ....	3,248	3,372	4,068	4,031

**MANUFACTURES.** The following figures, relating to 1908, show the number of establishments, the number of hands employed, and the salaries and wages paid: Working in wood, 1322, 21,310, \$9,352,658; metal works, machinery, etc., 1548, 48,505, \$24,629,205; food and drinks, 2253, 40,652, \$14,864,476; clothing and textiles, 2681, 70,075, \$16,327,165; books, paper, printing, etc., 998, 21,448, \$9,243,753; vehicles, saddlery, harness, etc., 1105, 10,784, \$3,697,951; heat, light and power, 313, 5786, \$3,499,966; ship and boat building, 76, 2278, \$1,340,613; drugs, chemicals and by-products, 153, 3086, \$1,167,691; all other, 2415, 33,602, \$12,653,843; total: establishments, 12,859; hands, 257,526; wages, \$96,777,321; value of lands and buildings, \$130,848,558; value of machinery, etc., \$126,337,766.

**SHIPPING.** In 1907, vessels entered in overseas trade, 2210, of 4,472,066 tons, and cleared, 2184, of 4,350,800 tons; in 1908, entered, 2022, of 4,295,679 tons (2,377,121 British), and cleared, 2029, of 4,285,472 tons (total entered and cleared, 8, 581,151); in 1909, total, 8,516,751. The chief ports in order of their volume of trade are Sydney, Melbourne, Adelaide, Brisbane, Fremantle, Hobart, and Albany.

**COMMUNICATIONS.** The following table, relating to the government railways for the year ended June 30, 1908, shows the mileage open, together with the total cost of construction and equipment, and the receipts and working expenses (in thousands of pounds sterling):

	Miles	Cost		Rec'ts	Exps.
		1907	1908		
N. S. W.....	3,472.5	45,683	4,944	2,715	
Vict. ....	3,896	41,929	3,873	2,436	
Qu. ....	3,359	22,576	1,951	1,054	
S. A. ....	1,879	13,910	1,741	970	
N. T. ....	145.5	1,180	14	14	
W. A. ....	1,943	10,733	1,502	1,008	
Tas. ....	463	3,978	278	202	
Total .....	14,658	139,988	14,304	8,398	

Reported government mileage open, June 30, 1909, 15,064; in addition, 1332.5 miles of private lines (of which 798 in Western Australia); total, 16,396.5. Plans were making in 1910 for the construction of a trans-continental railway. Telegraph (1908): Lines, about 49,750 miles; wires, about 161,800 miles; offices, 3411. Post-offices (1908), 7780.

Further details: *New South Wales.* On June 30, 1910, government railway, 3643 miles; private, 81.5 miles; other private lines connected with mines, 190 miles; post-offices, 2397. *Queensland.* On December 31, 1909, government railway, 3532 miles; telegraph lines, 10,439 miles; wires, 22,197 miles; post-offices, 1378. *South Australia.* On December 31, 1909, government railway, 1888 miles (and 145.5 miles in the Northern Territory).

**FINANCE.** Commonwealth revenue and expenditure for fiscal years ended June 30: 1908, £15,019,034 and £6,162,129 respectively; 1909, £14,349,835 and £6,419,364; 1910, £15,538,440 and £7,407,866. Surplus is paid over to the states. In the fiscal year 1910, £11,593,050 was derived from customs and excise. There is no Federal debt.

State finances relating to fiscal year ended June 30, 1909 (Queensland, December 31):

	Rev.	Exp'nd.	Debt.
N. S. W.....	£13,625,071	£12,882,607	£90,307,419
Vict. ....	8,247,684	8,240,177	54,567,197
Qu. ....	4,884,310	4,809,960	41,568,827
S. A. ....	3,551,189	3,259,417	30,436,183
W. A. ....	3,816,316	3,906,744	21,951,753
Tas. ....	934,405	960,237	10,134,914

In the fiscal year 1910, revenue and expenditure in New South Wales were £14,540,073 and £13,038,150 respectively, and the public debt at end of the year, £92,525,095; in Western Australia, £4,274,422, £4,060,620, and £23,287,453. The state debts have been incurred largely for the construction of railways and other public works.

**ARMY AND NAVY.** The military establishment comprised 12,000 as a garrison force in peace and war, and a field force with a strength of 6500 light horse, 24 guns, and 7500 infantry with 36 guns, and a war establishment of double that number. The total, including the garrisoned troops, would have in time of peace, a strength of 26,000 and in time of war, 40,000. In addition there would be the following partially trained troops: light horse, 7000 (approximately); cadets, 9103, and rifle club members, 28,721. The Australian Defense Act of 1909 aimed to enforce the principle of compulsory service between the ages of 12 and 26 in three classes: first, junior cadets, 12 to 14; second, senior cadets, 14 to 18; and third, troops of the National Guard, 18 to 26. The numbers in these services were not determined because the carrying out of the Defense measure was held in abeyance until Lord Kitchener should inspect Australian military conditions and offer his advice as to a plan. This advice was given in 1910,

and for an account of the plans under consideration, see below, paragraphs on *History*.

The Commonwealth navy consisted of 11 small cruisers distributed as follows: Queensland, two harbor defense vessels, one second-class torpedo boat and one picket boat; South Australia, one small cruiser and one second-class torpedo boat; Victoria, one armor-clad vessel of 3480 tons, two first-class torpedo boats and two second-class torpedo boats. In 1909 contracts were placed in Great Britain for three torpedo boat destroyers, and the first of these was launched on the Clyde in February, 1910, and the second in April. In 1909 the Commonwealth government offered the Imperial navy an armored cruiser of the improved *Indomitable* type. Work was begun on the vessel in June, 1910. It was to be named the *Australia*.

**GOVERNMENT.** The executive authority is vested in a Governor-General, who is appointed by the Crown and is assisted by a responsible ministry. The legislative power devolves upon a parliament of two houses, the Senate (36 members, 6 from each state) and the House of Representatives (75 members). The states are represented in the lower House in proportion to population. Members of both Houses are elected by universal adult suffrage. There are separate state parliaments, which are elective; but the state Governors are appointed by the Crown. Governor-General in 1910 (from September 8, 1908), the Earl of Dudley. Ministry (constituted April 29, 1910): Prime Minister and Treasurer, Andrew Fisher; Minister of Defense, George Foster Pearce; Trade and Customs, Frank Gwynne Tudor; Foreign Affairs, Egerton L. Batchelor; Home Affairs, King O'Malley; Postmaster-General, J. Thomas; ministers without portfolio, Edward Findley and Charles E. Frazer.

#### HISTORY

**RECENT POLITICAL EVENTS.** After the general election of December, 1906, Mr. Alfred Deakin, who had been chief of the Cabinet since July, 1905, continued in office. The Deakin government was obliged to depend on the Labor Party for support. This alliance lasted till November, 1908, when, the Labor members having withdrawn, the Deakin Ministry was overthrown, and a Labor Ministry under Mr. Fisher as Premier succeeded, but on the opening of Parliament, May 26, 1909, the Fisher Ministry was in turn defeated by a coalition of the three opposition groups. This new coalition Ministry under Mr. Deakin, consisting chiefly of Moderates, succeeded at the end of May. The policy of the Deakin government comprised the following features: The maintenance of the present protective tariff; a Federal Interstate Commission, to decide questions of wages referred to it by the State arbitration courts or wage boards; universal military training; coast defense; recognition of Imperial responsibilities; and postponement of the financial question impending between the states and the Commonwealth. It also promised the appointment of a High Commissioner to London. Important questions before the country in 1909 were those of military and naval defense and of a new fiscal arrangement between the Commonwealth and the states. As to military defense the government's plan comprised compulsory training of cadets between the ages of twelve and twenty and of citizens, the cadet training to begin in 1911 and the citizen training in 1912. The militia was to be

recruited only from these trained bodies. A naval defense bill framed in accordance with the advice of the Imperial Conference of 1909 and providing for one *Indomitable*, three protected cruisers, six destroyers, three submarines, and auxiliary vessels, was passed by Parliament toward the end of 1909; also a Naval Loan bill authorizing a loan to carry out this shipbuilding programme. A new fiscal arrangement with the States was necessary because payments under the "Braddon Clause" of the constitution would cease in 1911. This clause provided that during the first ten years of the Commonwealth the states should receive at least three-fourths of the Commonwealth's customs and excise revenues and as much more as the Commonwealth did not use. At the Melbourne conference of the State Premiers in August it was agreed that instead of three-fourths of the revenues the states should receive 25s. per capita of population. A Financial Arrangement bill providing for the necessary amendment of the constitution to admit of this per capita payment and also to authorize Federal assumption of state debts was thereupon drawn up by the Commonwealth government and was passed by Parliament in November.

**GOVERNMENT POLICIES.** On February 7, 1910, the programme of the government was discussed in a speech by Premier Deakin, in which he emphasized the duty of electors to vote for the financial agreement between the states. He said that upon the ratification of the present States' Debt bill a Royal Commission would consider the best means of consolidation, and that the result would be a decrease in the interest. He declared that the government hoped for further preferential trade treaties. A bill would be proposed providing for the appointment of an interstate commerce commission, with duties corresponding to those of the British Board of Trade. A bill for taking over the Northern Territory would again be brought in by the government. As to the land defense plan, the government was taking measures to bring it into effect, and in accordance with Lord Kitchener's advice, favored the building of transcontinental railways to Perth and Port Darwin. Military and naval colleges and small arms and cordite factories were being established. The postal contract with Great Britain, which had recently gone into effect, was working well. Lord Kitchener's recommendations for Australian defense were published in February. His scheme comprised an army of 80,000 men on a peace footing, consisting of 40,000 in garrison and 40,000 mobile troops, a war strength of 107,000, the establishment of a military college like West Point, and the division of the country into military areas, each to provide a quota. The total cost during the seventh year after the plan went into effect was estimated at £1,884,000. As to the financial agreement between the states the government answered its critics in the Labor party, saying that the policy of that party tended to starve the state finances by its tendency toward unification, its centralizing industrial legislation and its seizure of state sources of income by taxing land.

**GENERAL ELECTIONS.** The main contentions of the Labor Party in the general elections, which were held on April 13, were the application of the principle of "new protection" by means of the Federal Arbitration Court, the nationalization of monopolies, and the imposi-

tion of a graduated land tax. It also bitterly attacked the government's scheme for turning over from the Commonwealth to the states for an indefinite period an annual sum amounting to 25s. per head of the population, proposing instead a limitation of 10 years. On the other hand, the government offered a promise of anti-trust laws in place of the nationalization of monopolies and demanded that the new protection be secured through the Interstate Commission instead of the Federal Arbitration Court. Other features of the Labor programme were the maintenance of a White Australia; the establishment of a citizen defense force based on compulsory service and an Australian squadron to be built out of the revenue; a Commonwealth bank; the restriction of public borrowing; a navigation measure on the principles of the bill framed by the previous Fisher Ministry; the amendment of the Arbitration act, and insurance against unemployment. The additional features of the government's programme were special insistence on the Interstate Commission, tariff readjustment, preferential arrangements with other colonies, the defense scheme, the assumption of the Northern Territory, the establishment of a Federal agricultural bureau, the building of transcontinental railways, the navigation measure as amended by the Board of Trade, an electoral bill aiming at majority rule and measures for the codification and unification of the commercial law.

The results of the election were as follows: Labor Party, 44; Fusion, 20; Independent Liberals, 2; total, 75. Thus the Labor Party obtained a majority of 10 in the Senate and 13 in the House. On the meeting of the Cabinet on April 19, Mr. Deakin, the Prime Minister, resigned, and on the following day, Mr. Fisher, the labor leader, was sent for to form the new Ministry. Two questions were submitted by referendum: The first, whether the Commonwealth should assume the states' debt, was answered affirmatively, and the second, relating to the fixing of the financial relations between the Commonwealth and the states, was negative.

The latter measure proposed that the Commonwealth should return to each state annually from the customs revenue 25s. per head of the population instead of 75 per cent. of the customs receipts collected in the states' territories, which the states under the present arrangement were receiving. This was rejected by a majority of 25,000 in a total vote of 1,278,000. The chief measure on which the Labor Party seemed likely to insist was the progressive land tax which they believed would recoup the expenses of their defense scheme and as imposed on country lands would lead to the subdivision of large fertile areas now used for pasture. They also believed in the policy of encouraging immigration on a large scale.

PARLIAMENT. At the end of April, Mr. Fisher reappointed most of the members of the former Labor Ministry. At the opening of Parliament on July 1, the Governor-General's speech outlined the legislative programme. One of its chief features was the progressive land tax, with a £5000 limit, the basis of the tax being a reasonable market value of the land. Other features were the introduction of a Commonwealth note issue as legal tender; the confirmation of the grant of 25s. per head to the states for ten years, special arrangements being made in the case of Western Australia; the repeal of

the Naval Loan act; encouragement of immigration, and amendments of the defense act of 1909; the introduction of bills dealing with navigation, quarantine, railway building, tariff correction; improvements in the electoral and immigration laws; government control of wireless telegraphy, the acquisition of the Northern Territory, and a state-owned telegraph service with Great Britain. It was announced that constitutional amendments would be submitted to a referendum. These were to deal with an extension of the Federal powers over trusts, corporations, monopolies and combinations. The government also declared in favor of a policy for increasing the amount of fertile land available to immigrants. The new Navigation bill passed the first reading in the Senate toward the end of August.

In July the bill for the payment of a grant amounting to 25s. per head of the population to the states for ten years, passed the House and in the latter part of August it passed the Senate. The repeal of the Naval Loan act was passed by both Houses in August.

The government set forth its plans in some detail in connection with the budget speech on September 7. Premier Fisher announced that the estimates for the revenue and expenditure for 1910-11 balanced at £16,841,000. A large expenditure would, he said, be involved in the taking over and development of the Northern Territory. As to the government plans, he announced that penny postage would be established on May 1, that plans for the Western Australian Transcontinental Railway would be introduced into the next session of Parliament, that the state debts would be soon taken over, and that a referendum would be taken on the question of altering the constitution with a view to giving the Commonwealth equal legislative powers with those of the states in the matter of trade disputes. Finally, the government promised to submit proposals for the removal of tariff anomalies and for general tariff revision. In September the bill for the Commonwealth note issue passed both Houses. It called for a gold reserve of 25 per cent. on a total issue of £17,000,000 and 100 per cent. reserve on anything beyond that. The government had previously announced that it would not appropriate to Federal expenditures the gains of the note issue, but would invest them to the best advantage. The Land Tax bill provided for a progressive tax on unimproved land, with an extra charge of 1d. in the pound on lands held by absentees. The scale proposed was as follows: Estates up to £5000, free; from £5000 to £15,000, 1d., progressing at the rate of 1d. for every additional £15,000 up to £75,000; £75,000 to £80,000, 5d.; over £80,000, 6d. It was discussed in September and a number of amendments were offered. It was passed in November. In the same month the bill transferring to the Commonwealth the Northern Territory of South Australia passed both Houses. In October the High Court decided against the constitutionality of the common rule provisions in the Commonwealth Conciliation and Arbitration act. Early in November the Commonwealth Parliament passed the two Constitution Amendment bills, submitting to a referendum the question of the Commonwealth control over commercial and industrial matters and the question of the Commonwealth's authority to nationalize monopolies. The Penny Postage bill and the Defense bill, amending the Defense act of 1909, ac-

cording to the Kitchener recommendations, also passed.

Other important events of the year were the opening of a new mail service reducing the time between Australia and England by fifty-eight hours, and the appointment of Sir George Reid as Australian High Commissioner in London. During the latter part of the year there was much discussion of an Imperial Conference and the measures to be laid before it. The Commonwealth government finally agreed on the date for the next meeting of the conference, namely, May 22, 1911.

The tenth anniversary of the Commonwealth was completed at the close of the year. Its achievements were at that time thus summed up:

"(1) The formal acquisition of its own capital site and territory; (2) the attainment of direct control over the Northern Territory; (3) financial independence owing to the expiration of the Braddon clause of the constitution; (4) the assumption of responsibility for self-defense by the commencement of active operations for compulsory training under the Defense Act. The prospects of internal development by immigration, closer settlement, and railway decentralization are now brighter than they have been at any previous period of Federal existence." See also articles NAVAL PROGRESS and EXPLORATION, paragraphs on *Australasia*.

**AUSTRALIAN TARIFF.** See TARIFF.

**AUSTRIA-HUNGARY.** A constitutional monarchy of Central Europe, consisting of the Austrian Empire and the Hungarian Kingdom, united under one sovereign, besides the common territory of Bosnia and Herzegovina (annexed October 5, 1908). The capital of Austria is Vienna, and of Hungary, Budapest.

**AREA AND POPULATION.** The area of Austria is 115,905 square miles; of Hungary, 125,608; of Bosnia and Herzegovina, 19,702; total, 261,215 square miles. According to the census of December 31, 1900, the population of Austria was 26,150,708, and of Hungary, 19,254,559. Included in the figures for Hungary are those for Croatia and Slavonia, with 16,410 square miles and 2,416,304 inhabitants. Emigration from Austria and Hungary respectively: 1907, 177,354 and 209,174; 1908, 56,214 and 45,061; 1909, 143,532 and 128,734. The largest cities, with estimated population December 31, 1908, are: In Austria—Vienna, 2,107,981; Prague, 233,334; Lemberg, 188,566; Gratz, 162,160; Trieste, 223,340; Brünn, 122,725; Cracow, 157,251; in Hungary—Budapest, 935,132; Szegedin, 117,751; Maria-Theresiople, 91,787; Debreczin, 90,808.

**EDUCATION.** Elementary instruction is free and compulsory throughout the monarchy. In Austria there were at the end of 1907 21,478 elementary schools, with 97,019 teachers and 4,152,643 pupils; children of school age, 4,542,666; training colleges, 128. In 1910 gymnasias numbered 278 (95,867 students); realschulen, 144 (47,519). There are various technical, professional, and special schools with a large number of students. Eight universities are maintained by the state.

In Hungary, there were in 1908 2659 infant schools, with 232,140 infants; 19,170 elementary schools, with 43,203 teachers and 2,827,898 pupils; children of school age, 3,573,475; training colleges, 95, with 1143 teachers and 10,724 students; gymnasias, 184, with 3630 and 59,199; realschulen, 44, with 967 and 13,231. The state

maintains three universities, and, as in Austria, there are many special and technical schools.

**AGRICULTURE.** The area in thousands of hectares (2,471 acres) planted to the principal crops, in 1908, and their production in thousands of metric quintals (220.46 pounds) were as follows:

	Austria		Hungary	
	1000 ha.	1000 qu.	1000 ha.	1000 qu.
Rye .....	2,080	28,782	1,113	12,118
Oats .....	1,819	20,912	1,157	10,802
Wheat .....	1,198	16,909	3,834	45,021
Barley .....	1,116	15,131	1,136	12,819
Corn .....	342	8,853	2,766	42,268
Mixed grain..	40	543	98	1,117
Pulse .....	308	2,821	823	2,453
Hemp seed..	26	136	64	203
Flaxseed ....	50	237	18	56
Tobacco .....	5	66	49	751
Hops .....	25	187	.....	.....
Potatoes ....	1,250	129,508	657	43,708
Sugar beets..	231	58,142	105	20,907
Other beets..	215	35,426	198	48,210
Vines .....	266	8,142*	329	8,024*

\* Thousands of hectoliters of wine.

In Austria in 1908, 1,124,000 hectares under clover produced 3,873,500 metric tons of hay, and 114,538 hectares, 220,878 quintals of seed; 3,435,000 hectares of meadow yielded 8,699,800 tons of hay. Silk cocoons: Austria, 2,180,065 kilogrammes; Hungary, 1,677,000. The hop yield of the monarchy in 1908 was 43,239,240 pounds and in 1909 20,646,780 pounds; in the two years respectively Bohemia produced 31,900,000 and 11,066,000 pounds; all other Austria, 9,338,120 and 7,600,780; Hungary, 2,001,120 and 1,980,000. Crop yields in Hungary proper in 1909 and official estimates for 1910 are reported as follows, in bushels: Wheat, 113,352,000 and 184,789,000 respectively; rye, 44,858,000 and 57,096,000; barley, 71,868,000 and 63,601,000; oats, 92,270,000 and 79,308,000; corn, 161,860,000 and 192,336,000; potatoes, 183,523,000 and 171,902,000. Wheat production of the monarchy in 1909 is reported as follows: Austria, 58,468,000 bushels; Hungary, 113,352,000; Croatia and Slavonia, 12,556,000; Bosnia and Herzegovina, 2,594,000; total, 186,970,000 against 230,577,000 in 1908, 185,217,000 in 1907, and 268,708,000 in 1906.

**MINING.** In Austria, the total value of mining products (exclusive of salt, petroleum, etc.), was 295,486,865 kronen in 1907 and 317,833,337 kronen in 1908; smelting products, 132,807,655 and 136,920,722 respectively. The most important metal is iron, the ore produced in 1908 amounting to 2,632,407 metric tons, valued at 22,629,416 kronen; pig iron, 1,466,897 tons, valued at 117,158,715 kronen, against 109,696,000 kronen in 1907, 83,227,000 in 1905, and 82,304,000 in 1900. The values of other raw metals and of coal produced are reported as follows, in thousands of kronen:

	1900	1905	1907	1908
Zinc .....	3,164	5,283	6,178	5,916
Lead .....	4,722	4,810	6,993	4,716
Silver .....	3,908	3,754	4,131	3,414
Mercury ....	2,495	2,551	2,487	3,035
Copper .....	1,538	1,508	1,649	1,060
Coal .....	95,591	99,875	129,493	139,716
Lignite .....	112,634	100,957	125,528	140,150

The coal raised in 1908 amounted to 13,875,538 metric tons; brown coal, 26,728,926; iron ore, 2,632,407, valued at 22,629,416 kronen; salt, 388,133 tons, 48,403,553 kronen; graphite, 44,

425 tons, 1,725,488 kronen; raw gold, 485,243 kronen. Persons employed, in Austria, in 1907: In mining, 143,490; in smelting, 9112; in salt works, 6947 (6874 in 1908).

In Hungary, the values of the principal mineral and smelting products have been as follows, in thousands of kronen:

	1905	1906	1907	1908
Lignite .....	39,121	46,018	51,887	62,640
Pig iron.....	33,723	33,844	36,329	43,557
Coal .....	11,345	13,178	14,721	16,116
Iron ore .....	8,259	9,276	11,439	13,287
Gold .....	12,017	12,252	11,479	10,787
Silver .....	1,518	1,426	1,266	1,132

Persons employed, in Hungary, in 1908, in mining and smelting, 81,053, and in salt works, 2532.

**MANUFACTURES.** Manufacturing industries have acquired much more importance in Austria than in Hungary. The leading manufactures include cotton textiles, iron and steel goods, sugar, alcohol and spirits, beer, tobacco, woodenwares, paper, earthenwares, glass, and leather goods. The latest comprehensive statistics for Austria are for 1902, when productive industries numbered 652,424 (629,809 principal and 22,615 subsidiary), with 2,869,457 employes and 1,558,582 horsepower; trade and transport, 399,412 industries (370,302 principal and 29,110 subsidiary), with 716,299 employes and 229,285 horsepower; in home industries, 463,564 workers; persons dependent on all these industries, over 7,000,000. For Hungary, the latest comprehensive figures are for 1900, when the workers in the various industries (including trade, etc.) numbered 1,127,730, and the total number dependent thereon, over 2,600,000.

**COMMERCE.** The following table shows, in thousands of kronen, the special trade in merchandise of the common customs territory of the monarchy (imports for consumption and exports of domestic produce) and the imports and exports of coin and bullion:

	1906	1907	1908	1909
<b>Imps.</b>				
Mdse. ....	2,341,205	2,501,974	2,398,094	2,746,331
C. & B... ..	42,846	43,786	83,515	237,101
<b>Total</b> ....	<b>2,384,051</b>	<b>2,545,760</b>	<b>2,481,609</b>	<b>2,983,432</b>
<b>Exps.</b>				
Mdse. ....	2,380,087	2,457,286	2,255,268	2,318,868
C. & B... ..	53,121	78,866	66,535	128,331
<b>Total</b> ....	<b>2,433,208</b>	<b>2,536,152</b>	<b>2,321,803</b>	<b>2,447,199</b>

Values in kronen of the leading imports and exports, in the special trade, in 1908 and 1909 are shown in the table below. The letters at the left indicate: *a* cotton and its manufactures; *b* wool and its manufactures; *c* cereals, flour, etc.; *d* coal and other fuel; *e* vegetables, fruits, etc.; *f* animal products; *g* iron and steel and their manufactures; *h* other common metals and their manufactures; *i* machines, apparatus, etc.; *j* electrical machinery, apparatus, etc.; *k* vehicles and vessels; *l* instruments, watches, etc.; *m* silk and silk goods; *n* flax, hemp, jute, etc., and their manufactures; *o* colonial produce; *p* leather and its manufactures; *q* chemicals, by-products, etc.; *r* minerals; *s* tobacco; *t* rubber and its manufactures; *u* sugar; *v* cattle and draft animals; *w* apparel, etc.; *x* wood and bone manufactures; *y* glass and glassware; *z* paper

and its manufactures; *zz* precious metals (including coin and bullion).

	Imports		Exports	
	1908	1909	1908	1909
<b>a</b> ..	301,963,924	326,944,480	58,771,705	64,120,551
<b>b</b> ..	212,485,455	264,987,262	91,388,424	99,046,884
<b>c</b> ..	44,962,863	220,651,517	141,339,336	118,157,500
<b>d</b> ..	222,187,031	217,083,345	356,409,351	340,948,761
<b>e</b> ..	108,246,699	156,084,755	73,777,465	82,022,564
<b>f</b> ..	143,314,771	154,017,243	211,831,885	240,193,697
<b>g</b> ..	67,927,050	58,287,780	35,727,603	35,832,520
<b>h</b> ..	112,649,960	113,446,193	61,709,160	69,805,967
<b>i</b> ..	101,976,709	91,648,250	22,851,454	23,855,518
<b>j</b> ..	20,773,963	20,780,530	9,121,714	9,236,955
<b>k</b> ..	11,563,277	14,094,525	7,580,735	9,060,004
<b>l</b> ..	49,021,141	54,455,926	11,355,596	12,907,291
<b>m</b> ..	98,915,020	106,793,735	47,484,730	45,521,735
<b>n</b> ..	73,242,363	74,982,307	50,203,772	55,440,532
<b>o</b> ..	67,945,832	71,512,490	5,058	24,094
<b>p</b> ..	63,301,635	68,977,870	58,743,888	66,816,475
<b>q</b> ..	75,085,794	76,931,247	42,898,379	47,596,280
<b>r</b> ..	46,335,028	50,485,748	41,555,173	45,497,162
<b>s</b> ..	49,482,860	50,290,180	11,368,520	11,639,392
<b>t</b> ..	33,179,735	49,137,900	15,403,900	19,063,745
<b>u</b> ..	188,309	141,917	226,699,993	240,642,436
<b>v</b> ..	11,799,304	10,495,434	121,579,557	111,265,954
<b>w</b> ..	23,438,468	23,008,477	78,615,358	81,218,780
<b>x</b> ..	21,314,617	22,301,409	67,425,622	66,940,483
<b>y</b> ..	6,739,463	7,158,013	64,052,606	71,009,911
<b>z</b> ..	80,546,196	32,113,205	59,997,847	57,248,150
<b>zz</b> ..	128,709,125	285,131,826	75,840,157	137,821,452

Imports from and exports to the countries commercially most important were valued in 1908 and 1909 in thousands of kronen:

	Imports		Exports	
	1908	1909	1908	1909
Germany ..	994,635	1,067,592	1,046,922	1,044,882
U. States ..	221,656	231,058	58,090	84,236
Gt. Brit.....	215,529	218,609	230,924	241,329
Russia .....	127,224	181,390	71,693	76,995
Brit. India..	136,270	173,519	56,135	67,850
Italy .....	117,834	123,124	228,354	233,350
France .....	81,821	97,351	65,380	69,209
Other C'ties	503,125	653,330	497,770	511,017
<b>Total</b> ....	<b>2,398,094</b>	<b>2,746,331</b>	<b>2,255,268</b>	<b>2,318,868</b>

**SHIPPING.** The total movement at the ports and the Austro-Hungarian part thereof are shown below:

	Entered		Cleared	
	Vessels	Tons	Vessels	Tons
Steam .....	159,603	22,430,020	159,570	22,428,436
Sail .....	20,774	756,891	20,781	754,763
<b>Total</b> .....	<b>180,377</b>	<b>23,186,911</b>	<b>180,301</b>	<b>23,183,199</b>
<b>Aus.-H.</b> .....	<b>142,670</b>	<b>16,498,481</b>	<b>141,718</b>	<b>16,277,480</b>

The merchant marine at the beginning of 1909 included 429 steamers, of 447,786 tons, and 14,570 sailing vessels, of 49,328 tons. These figures include 13,077 fishing vessels, of 25,371 tons.

**COMMUNICATIONS.** The total railway mileage at the beginning of 1910 is reported at 27,058, of which 13,849 were in Austria, 12,793 in Hungary, and 416 in Bosnia and Herzegovina. Of the Austrian lines, about seven-tenths, and of the Hungarian about four-fifths, are owned or operated by the state. Austria has about 4200 miles of navigable river and canal, 830 miles being navigable for steamers; Hungary, about 3200 miles, 2450 being navigable for steamers. Post-offices, 1908: Austria, 9706; Hungary, 5773; Bosnia and Herzegovina, 137; foreign, 42. Telegraphs, 1908: Austria, 6698 offices, with 27,570 miles of line and 137,920 of wire; Hungary, 4199 offices, with 16,163 and 89,671;

Bosnia and Herzegovina, 170 offices, with 2033 and 5907. Receipts and expenses of posts and telegraphs, 1908: Austria, 158,354,000 and 160,308,000 kronen respectively; Hungary, 75,208,000 and 58,324,000.

**FINANCE.** The cost of administering the common affairs of the monarchy is borne by both governments in a proportion agreed to by their Parliaments and sanctioned by the sovereign. According to the agreement of 1907, renewed for ten years, the net proceeds of the common customs are applied to the common expenditure, and the remaining expenditure is satisfied by Austria in the proportion of 63.6 per cent. and by Hungary, 36.4 per cent. The monetary standard is gold, and the unit of value the krone (crown), worth 20.3 cents. In 1906 the expenditures of the monarchy amounted to 419,594,656 kronen (339,605,573 ordinary and 79,989,083 extraordinary); in 1907, 433,529,713 kronen (365,582,523 ordinary and 67,947,190 extraordinary). These amounts were balanced by the receipts, which included the net customs revenue of 154,577,783 kronen in 1906 and 162,032,206 kronen in 1907 and the matricular contributions of the two parts of the monarchy totaling 259,706,536 kronen in 1906 and 266,067,557 in 1907. According to the budget for 1910, estimated revenue and expenditure balanced at 432,505,850 kronen. Customs and matricular receipts were estimated together at 423,459,600 kronen. Estimated expenditure for the common army, 344,402,749 kronen; navy 67,097,450.

No loans are contracted jointly by Austria and Hungary. When the union was effected in 1867, existing obligations were assumed in common; this debt on January 1, 1910, amounted to 5,220,443,456 kronen.

The revenue and expenditure of Austria in 1907 were 2,253,052,144 and 2,209,092,911 kronen respectively; in 1908, 2,388,383,708 and 2,373,894,154. For 1910 the estimated gross revenue was 2,727,741,383 kronen, and the estimated total expenditure 2,780,822,657 kronen. The larger items of estimated revenue were: Railways, 776,176,990 kronen; excise, 371,384,000; direct taxes, 348,939,200; tobacco monopoly, 272,147,000; posts and telegraphs, 170,880,000; customs, 155,378,000; court fees, 115,517,200; stamps, 59,255,500; salt monopoly, 48,129,200; lottery, 33,540,150. The larger estimated expenditures (ordinary and extraordinary): Railways, 735,561,850 kronen; ministry of finance, 818,327,143 (including 478,384,244 for public debt); common expense of the monarchy, 350,184,890; posts and telegraphs, 169,503,180; ministry of worship and public instruction, 103,001,572; ministry of public works, 100,458,323; ministry of justice, 86,387,991; ministry of national defense, 98,701,330. On January 1, 1910, the consolidated debt was 5,214,160,023 kronen; floating debt, 310,497,022; total, 5,524,657,045.

In Hungary, the revenue in 1908 was 1,531,368,000 kronen (ordinary, 1,409,321,000); expenditure, 1,616,245,000 kronen (ordinary, 1,319,539,000; sinking fund, 200,390,000). For 1910 the total estimated revenue was 1,555,777,976 kronen (including 161,992,281 extraordinary) and the total estimated expenditure 1,555,729,907 kronen (including sinking fund, 163,063,554). The larger items of estimated ordinary revenue were: Railways, 327,470,000 kronen; excise, 246,835,000; direct taxes, 240,822,000; tobacco monopoly, 144,152,000. The larger estimated expenditures: Ministry of

commerce, 339,167,240 kronen; ministry of finance, 228,047,567; Hungarian debt, 189,823,887; common expense and debt of the monarchy, 147,380,178; national defense, 48,548,723. On January 1, 1910, the debt stood at 4,803,304,000 kronen; in addition, arrears, etc., amounting to 895,112,105 kronen; total, 5,698,416,105.

**ARMY.** The active army of Austria-Hungary consists of a single organization, according to the compromise of 1867. It follows in the main the German model, and in 1910 consisted of 17 army corps. These army corps on a peace footing consisted of 5 cavalry divisions, made up of 252 squadrons, organized as 15 regiments of Dragoons, 11 of Uhlans and 16 of Hussars. There were 34 infantry divisions composed of 468 battalions organized as 106 regiments of the line, 4 of Tyrolese rifles and 26 battalions of regular rifles. By the reorganization of the artillery in 1910 there were 130 field guns and 24 howitzers for each army corps, in addition to 24 guns for the Landwehr division attached to each division of the active army, making in all 178 guns for each corps. The heavy artillery consisted of 5 siege howitzer divisions, each of which on a war footing had 4 gun batteries. There were 12 mountain batteries, and 6 regiments of fortress artillery. In addition to the active army there is in Austria a Landwehr and Landsturm, and in Hungary also a Landwehr and Landsturm which is known as the Honved. This national Hungarian army in time of peace is entirely under Hungarian jurisdiction, but on the outbreak of war is subject to the Commander-in-Chief. Each division of the active army has attached to it a Landwehr division. In the Landwehr there were 37 infantry regiments and 3 localized rifle regiments, and 6 regiments of cavalry, which in 1910 was increased by mounted troops from the Tyrol and Dalmatia. On the peace footing the active army consists of 386,700 men, which in case of war would be augmented to 900,000. The Landwehr and Honved on the peace footing are made up of 67,200 men, and these on the war footing would be increased to 160,000. The second reserve comprises 500,000 men and the Landsturm 2,000,000, so that the Austro-Hungarian army on the peace footing in 1910 amounted to 386,700 men, a number which could be expanded to a war footing of 3,560,000. This last figure was obtained by embodying the class of the Landsturm, but military critics consider that the war effective for Austria-Hungary was about 1,800,000 officers and men.

Army estimates in the budget for 1910 involved a total of 344,935,017 kronen, which included ordinary expenditures amounting to 326,497,077 kronen, extraordinary expenditures amounting to 10,073,500 kronen, and a supplementary expense for the army of occupation of Bosnia and Herzegovina, amounting to 8,364,350 kronen. This budget provided for the army made up of 17,030 officers, 4323 officials, 1042 employes, 2361 cadets and re-engaged non-commissioned officers, 15,264 non-commissioned officers and 271,964 men. In addition the budget included appropriations for 62,209 horses belonging to the monarchy and 10,450 horses for officers.

Military service is compulsory and enforced on all citizens between 19 and 34 years of age in both countries. It consists of service in the common army for 3 years, then 7 years in the reserve, 2 years in the Landwehr reserve and final enrollment in the Landsturm until the period of military service is finished.

The contingent for the year 1910 was fixed as follows: For the common army of the Empire (including the navy) 103,100, of which number 59,024 were recruited in Austria; for the Austrian Landwehr, 19,204. The Hungarian contingent it was claimed during the year would have to be increased as the regiments of infantry were much too weak and various reforms in organization were in progress during the year.

**NAVY.** At the end of 1910, the effective navy included: 8 first-class battleships, of 115,300 tons displacement (*Erzherzog Karl*, *Erzherzog Friedrich*, *Erzherzog Ferdinand Max*, 10,600 each; *Erzherzog Franz Ferdinand*, *Zrinyi*, *Radetzki*, 14,500 each; *Tegethoff*, *Kaiser Franz Josef*, 20,000 each); 3 first-class armored cruisers, of 19,020 tons (*Kaiserin Maria Theresia*, 5270 tons; *Kaiser Karl VI.*, 6250; *Sankt Georg*, 7500); 6 coast-defense vessels, aggregating 41,700 tons; 3 cruisers, aggregating 11,500 tons; 3 small cruisers, aggregating 7050 tons; 14 torpedo-boat destroyers, 5762 tons; 47 torpedo boats, 7155 tons; 12 submarines, 3336 tons. In addition there are transports, gunboats, old vessels, etc., not included in the effective navy.

**GOVERNMENT.** The sovereign of the monarchy in 1910 was Franz Josef I., of the House of Hapsburg, who was born August 18, 1830, and became Emperor of Austria December 2, 1848, and King of Hungary June 8, 1867. His nephew, Franz Ferdinand, born in 1863, is the heir-presumptive. The Emperor-King directs the common administration, under the constitutional compromise of 1867, being assisted by a ministry of three members, for foreign affairs, finance, and war, who are responsible to the two Delegations (of 60 members each), representing respectively the Austrian and Hungarian Parliaments. The Delegations, which convene each year, alternately at Vienna and at Budapest, examine the requirements of the common services and advise the Parliaments as to necessary appropriations. The common government deals with finance relating to the monarchy as a whole, the army and navy, foreign affairs, the diplomatic, postal, and telegraphic services and certain state monopolies. The ministers at the end of 1910 were: Premier and Minister for Foreign Affairs, Count Alois Lexa von Aehrenthal (appointed 1906); Finance, Baron Stephan Burian von Rajecz (1903); War, General Baron Franz von Schönaich (1906); Premier of Austria, Dr. R. Baron von Bienenrath; of Hungary, Count Charles Kuen-Hedervary (appointed January 18, 1910).

Austria and Hungary have each a representative parliament of two houses and a responsible ministry appointed by the sovereign. Croatia and Slavonia and each province of Austria has a separate diet.

#### HISTORY

**RECENT HISTORY.** During the last three years the spectacular events which marked Austria-Hungary's so-called "forward policy" have so absorbed public attention outside the monarchy that comparatively little has been said about the ever present and serious internal problem of the rival nationalities. In 1910 racial antagonisms were conspicuously shown on many occasions and greatly enhanced the difficulty of parliamentary government. The important features of the political situation in 1910 were the embarrassment of the government with its small majority in dealing with the conflicting interests of the nationalities, the pressing need of fiscal reform in view of the rapidly increasing expenses,

and the Hungarian political crisis. As to the "forward policy," it had not caused the predicted disasters. The annexation of Bosnia and Herzegovina, which took place in October, 1908, was followed early in 1909 by a peaceful adjustment with Turkey and, although war with Serbia seemed at one time inevitable, all danger of it was averted when Serbia in March, 1909, finally expressed in the terms demanded by Austria her complete acquiescence. After this threatening crisis, during which Austria made active preparations for war and even mobilized her troops on the frontiers, the fear of any immediate European conflict over the Balkan question subsided. In this imbroglia with Serbia, Russia incurred the bitter criticism of the Slavs by her sudden change of front in what was supposed to be her definite policy in the matter of the annexation. She had from the first steadily favored a European conference on the Treaty of Berlin, but in March, 1909, while the Powers were considering the form of words which Serbia should employ in response to the Austrian demands, Russia suddenly announced her agreement to the Austro-Turkish understanding and her recognition of the annexation of Bosnia and Herzegovina as an accomplished fact, without any reference to the European conference or to international ratification. The Russian Foreign Minister, M. Isvolsky, was sharply criticised and the action of the Russian government was attributed to the fear of war with Germany. In the press generally this sudden and unqualified acceptance of the annexation was regarded as a back-down on the part of Russia and as a triumph for German diplomacy.

In the latter part of 1909 writers on diplomatic affairs were engaged in a controversy as to the real responsibility for the annexation policy. On the one hand it was said that M. Isvolsky had agreed to annexation in advance, having committed himself to it at a meeting with Count von Aehrenthal at Buchlau in September, 1908. On the other hand that interview received widely different interpretations. Charges of bad faith were made by the partisans of both Ministers. Discussion of this subject continued during the opening months of 1910, being of especial interest in connection with the attempt of the Russian and Austrian governments to renew the friendly ties which had been broken by the annexation.

**RELATIONS WITH RUSSIA.** Early in the year negotiations took place between the two chancelleries with the aim of coming to an understanding on the Balkan question. On February 9, 1910, M. Isvolsky announced through his Ambassador at Vienna the Russian government's readiness to exchange views on the subject of the Balkan question, but declared that such an exchange of views ought to take a form that admitted of the participation of all the interested Powers. Therefore the Russian government proposed the following points which should later be brought to the attention of the other Powers: First, maintenance of the *status quo* in the Balkan Peninsula; second, the support and consolidation of the new régime in Turkey; third, the independence, consolidation and peaceful development of the small Balkan states. On February 20, 1910, the Austrian Cabinet replied that there was at present no menace to the *status quo* in the Balkans, that if internal disorders or wars should arise in the Balkan states, such an exchange of views between the two coun-

tries might be useful and that nothing would prevent the subsequent communication of these views to the other Powers in such form as would admit their participation, but "that it is actually at present sufficient to publish the communication in which the two governments declare that the exchange of views has had a favorable result and that the two Cabinets in mutually acknowledging the principles of their policy, have recognized that these principles permit them to enter into relations every time the situation in the Balkans shows them the opportunity." To a later communication from M. Isvolsky saying that it was necessary to invite other Powers to participate in the *pourparlers*, Count von Aehrenthal replied on March 14 that this would lead to the supposition that there was a formal accord between the two governments and that this was not purposed by the Cabinet of Vienna. These communications were published on March 20. The normal relations of amity between the two governments were thenceforth resumed.

**BOSNIA AND HERZEGOVINA.** The constitution of Bosnia and Herzegovina was published on February 21. It provided for universal direct suffrage, but with three classes of electors: First, the larger taxpayers, persons holding academic diplomas, and all members of Chambers of Commerce; second, urban voters; third, country voters. Seats were to be distributed in each class according to the numerical strength of creeds, each creed voting separately. The Crown was to appoint the President of the Diet from among the members of each creed in succession. The Diet was to consist of 72 members and to deal exclusively with the affairs of Bosnia and Herzegovina, including the budget and all matters of administration. During the first week in June the Emperor paid a visit to Bosnia where he received a cordial popular welcome. The Diet of Bosnia and Herzegovina began its first session in the middle of June. Its opening days were marked by a lamentable outrage, an attempt being made to assassinate the local governor as he was returning from the inaugural ceremonies. Criticism of the new constitution began at once in the Diet and soon the three parties united in passing a joint resolution complaining that the constitution did not conform to the wishes of the people and pointing out certain of its defects.

There was some serious criticism in the Delegations of the government's policy toward Russia in the annexation of Bosnia and Herzegovina in October when a young Czech leader accused the government of dragging Austria-Hungary, with its population 60 per cent. Slav, at the heels of Germany and referred to the hostility of the Slavs toward the pro-German Ministry. Count von Aehrenthal replied that this policy had been absolutely necessary and that so far as relations with the foreign countries were concerned, Austria was on friendly terms with Russia, France and England. The government also desired peace and the *status quo* in the Near East, and friendship with Turkey. The majority of the Delegations voted confidence in the government's declaration of its policy and accepted the estimates of the Foreign Office.

**RACIAL CONFLICTS.** The long struggle of the Austrian government to secure a peaceful adjustment between the opposing nationalities continued in 1910. The language question was then as formerly the chief point. The Prime Minister,

von Bienenrath, made repeated attempts to secure a compromise on this subject. He caused conferences to be held and submitted projects of compromise to the discussion of Parliament. He laid down as the programme of the government the securing of a working majority, strong enough to prevent race conflicts from enfeebling the national policy and capable of taking decisive action in foreign affairs. It was implied in the government programme that if a truce could be formed between the warring nationalities the genuine parliamentary government would follow, based on the principle of ministerial responsibility. The principle on which the conciliatory policy of the von Bienenrath Ministry rested was that if German were received as the language of Upper and Lower Austria, the Germans ought to concede something to Bohemia. German and Czech leaders met in conference in the autumn. Negotiations were on the point of breaking off in November but were resumed on the intervention of the Emperor. There seemed little prospect, however, of a compromise, for although the races accepted in principle the need of a *modus vivendi* on the language question, each was unwilling to make any concessions. The Germans demanded the guarantee of their language within its present limits and the Slavs insisted on their historic rights as regards language which would mean an extension of its limits as against their neighbors. The Reichsrath appointed a commission to consider plans of compromise to be referred to it by the government and by Parliament, but the Slavs prevented it from beginning its labors. The question divided the political groups in Parliament and disorganized the national bloc on which the government relied. It could count now on a bare majority of twelve and its supporters were disunited. The Opposition composed of equally heterogeneous material, agreed only on the single principle that if anything went wrong in public affairs the government was to blame for it. Even the Socialists, who controlled over a hundred seats and had been chosen apparently on an international platform, were divided into national groups which were openly hostile to one another. The natural result of these divisions was to prove anew the abnormal character of parliamentary government in Austria. The government was unable to carry out its fiscal reform, and as the session continued racial animosities increased in bitterness. The conferences between the Czech and German leaders, however, were still going on at the close of the year. The Czechs were in a strong position, because the government having lost the support, had to depend on them. See paragraphs below on the *University and Canal Questions*.

**FISCAL POLICY.** The expenses of the government had been mounting rapidly in recent years. The budget for 1910 showed expenditures at 2,780,000,000 crowns and receipts at 2,727,000,000 crowns. During the last two years the public debt had greatly increased, owing to the purchase of railways during that period and to the comparatively small profit which the lines had yielded, but apart from this a great increase of expenditure had taken place in recent years, not only in Austria but in the crownlands, owing to the necessity of duplicating functionaries on account of the polyglot institutions and these expenses were further increased by the confused and cumbersome system of administration involving overlapping of functions as between the state and local authorities. Moreover, new

burdens were imposed on the state by its annexation policy and by the military and naval outlay involved in the attempt to keep pace with the increasing armament of the other Powers. Again, in late years there had been not only a great increase in the number of public servants, including professors and teachers of every class, but also in their salaries. In the several provinces there had been a corresponding increase of expenditure and their budgets had fallen into great confusion. All of them were demanding state aid in the shape of a proportionate share of the revenues from taxation. In the 16 countries of the Crown the deficit had risen to 80,000,000 crowns. They demanded that the administrative system be reformed in such a way as to throw upon the state a part of the cost of maintaining state offices, now borne by the provinces.

The Finance Minister asked Parliament to authorize a loan. After some hesitation this was granted. The discussion on the subject brought out the serious condition of the public finances and the necessity of finding new sources of revenue to meet the increasing deficit instead of having recourse to a temporizing policy of borrowing. The Minister of Finance offered financial projects to this end, but they encountered serious opposition. He proposed a considerable increase in the progressive income tax and in the succession duties, the latter being in accord with the wishes of the Socialist group. The House of Lords in which great landed and industrial interests were represented set themselves against these measures and opposed generally a further levy on large fortunes, favoring rather the imposition of new indirect taxes and the increase of the present ones. The government was unable to carry through its fiscal policy as regards new revenues. Nor did it seem possible to effect reforms by reducing expenses since there was a constant pressure from the different nationalities for new expenditures on their behalf. If for any reason one nationality derived financial benefit from a government measure the others immediately demanded an equivalent, without regard to the difference in the situation, on the principle that all nations should be treated alike. In 1910 the demands of the Italians for a national university and of the Poles for the execution of the canal project promised by the Koerber Ministry in 1901 illustrated the difficulties of the government in dealing with this competitive spirit of the nationalities.

**THE NATIONAL UNIVERSITY QUESTION.** For many years past the Italians have demanded the establishment of an Italian university at Trieste. The government for a long time turned a deaf ear to these demands owing to the relatively small number of the Italians and to the fact that each of the Slav nationalities was also demanding national universities. And although Trieste was an Italian city, its hinterland was wholly Slovenian. Moreover Trieste was a centre of irredentism. Finally, however, the government yielded so far as to establish a Faculty of Law at Wilten, a suburb of Innsbrück, where a building was placed at their disposal, but the Germans of the Tyrol protested against it and hardly had it begun its work when an attack was made on the building, and the students were driven out and the furniture was destroyed. After this outbreak the government made no further attempt to maintain a university there. It was then proposed that it should be set up in an Italian community and the gov-

ernment named the little town of Rovereto, but the Italians opposed this and insisted on Trieste. The government declared that it was bound by its promise but the question of a site still remained unsettled. As soon as the Italians brought pressure to bear on the government to redeem its promise each of the Slav nationalities renewed their demand for a national university. The Czechs, though they have a university at Prague, demanded another one at Brinn. The Ruthenians demanded a university of their own, but were divided among themselves as to its proper site. The Slovenians demanded a university at Laibach and the Rumanians asked that the University of Czarnowitz be turned into a Rumanian institution.

Obviously the government could not meet all these demands, which not only would entail great additional cost on the already heavily burdened finances, but would result in the foundation of skeleton universities with insufficient funds for their maintenance and likely to become centres of nationalistic agitation. A student outbreak at Lemberg at the end of June illustrated the bitter racial rivalries in this matter. During the discussion of the budget the Greek Orthodox Archbishop of Lemberg made a speech on June 29 in favor of a Ruthenian university in that city, whereupon the Polish students at the University of Lemberg made a violent demonstration on behalf of the establishment of a Polish university there and a fracas took place in which several persons were injured. These conflicts on the university question made compromise on the issues between the nationalities impossible. The government managed to hold together its majority against the Slavic opposition by the aid of the Poles, but after the budget vote a crisis arose owing to the government's refusal of their demand that a law for the construction of canals uniting the Danube with the Vistula be immediately voted.

**THE CANAL QUESTION.** When the Koerber Ministry in 1901 promised the construction of these canals one of the chief arguments on behalf of the project was the necessity of a competing route as against the Northern Railway system, but since that time the Northern Railway system has been purchased by the state. Moreover, the early estimates of cost of the canals had been hastily prepared and were found to be hardly more than a third of the probable cost. On the other hand the Poles declared that the law for the construction of these canals had been voted and ratified and that it must be put into execution. The price of estates in the neighborhood of the proposed canals had increased and there would be serious losses to investors. The future development of Galicia depended on the execution of the project. The Northern Railway system would not suffice for the increasing traffic, especially since the discovery of rich coal fields, for whose exploitation additional means of transportation were necessary. The threat of Polish defection prevented the government from carrying out its fiscal reform projects, and the opposition of the Slavs to an Italian university made it impossible for the government to keep its promise to the Italians in that matter. National jealousies on these subjects and others increased and a serious crisis was averted only by the adjournment of Parliament. On the next meeting of Parliament, the opposition of the Poles continuing, the Cabinet resigned without taking a vote. The anger of the Poles was intensified by the fact

that the Minister of Finance, himself a Pole, opposed their demand.

**HUNGARIAN POLITICS.** The prolonged political crisis of 1909 came to an end on January 4, with the definite appointment of Dr. de Lukacs as Premier. He resigned, however, on January 11, and was succeeded by Count Khuen-Hedervary, to whom Count Tisza and the remaining members of the Liberal party pledged their support. De Lukacs was appointed Minister of Finance in the new Cabinet. Its chief aim was to secure a majority in the coming elections. Its programme comprised a conciliatory policy toward Austria and Croatia, universal suffrage, the reform of the county administration, and the transfer of the appointment of county officers from the locality to the state. The Chamber at first showed itself hostile to the new Ministry, treating it with noisy demonstrations and characterizing its members as lackeys of the Imperial government. Soon after its opening in January the Ministry brought in various measures for the carrying out of its policy and it declared that it would judge from the treatment of these measures whether peace between the government and the legislature was possible. It aimed at reform of the suffrage without plural voting and promised a settlement of the Croatian question. The majority in the Chamber consisted of the Kossuth, Justh and Clerical parties. The followers of Andrássy were neutral. Failing to make progress against the Opposition the government dissolved Parliament on March 22, after appealing to the country to form a new party, to be known as the party of National Labor, in support of its programme. Riotous outbreaks in the Chamber took place on the announcement of dissolution. The elections of May went completely in favor of the government, supporting Hedervary, who was the government's spokesman. The government secured 246 seats out of 413. Thus the adroitness of the King in dealing with the situation was again demonstrated. For a long time there had seemed to be a danger that the Independence party, which was working for the separation of the dual monarchy, would gain its end. Its following increased and finally it received a majority in the elections. Hereupon the government, instead of fighting the Opposition, formed a new Ministry from its members, a policy which seemed at first thought dangerous, as playing into the hands of its enemies by admitting into power the propagandists of separation, including Francis Kossuth, the son of the great revolutionary leader. But, as happens often with radical parties when in power, temporizing counsels and compromises divided the Independence party into two wings, one element favoring a conservative course now that it was in possession of the government, and the other insisting on a radical programme including an independent bank, the nationalization of the Hungarian army and other measures tending to loosen the imperial bonds. This division resulted in the complete triumph of Count Hedervary, who secured a majority of 160 seats, and for the first time in a long period the Emperor-King had a Ministry upon whom he could absolutely rely. In the new Chamber which was opened on June 25 there were 246 Ministerialists, 48 Kossuth Independents and 37 Justh Independents. The strength of the new government in Hungary was assured in July when the acceptance of the address of the government was carried by a large majority. The Premier's

speech was applauded for its moderation and wisdom, even by the members of the Opposition and by the Opposition press. He urged the need of a common army and a common bank.

**THE HUNGARIAN LOAN.** Hungary endeavored to negotiate a loan of 560,000,000 kronen in the French market, but French financiers, though at first apparently ready to accept the loan, developed a reluctance in the matter which was attributed to Russia's supposed intention to issue a new loan in Paris, and to the Austrian government's failure to comply with the demand for the redemption of the Austrian Southern Railway bonds, which are largely held in France; also to the measures taken in Austria against a certain loan the suspicion having arisen and being company in which the French held securities. Political reasons were also urged against the heightened by disclosures in Austrian journals, that the placing of the Hungarian loan in Paris was acceptable to the Austrian government, as the Austrian government could then more readily supply the government's needs, which were heavy on account of the shipbuilding programme. After failing to place the loan in Paris the government began negotiations for placing the loan in Austria and Germany and in the autumn these negotiations were practically complete.

**OTHER EVENTS.** At the beginning of April the Croatian Supreme Court annulled the sentences imposed on the 31 defendants convicted in 1909 at the Agram high treason trial. This trial had arisen from charges that were brought against 53 persons in 1909 in connection with an alleged conspiracy for the separation of the provinces of Croatia, Slavonia and Bosnia from the empire to form a part of a "Greater Serbia." Twenty-two of the prisoners were acquitted and thirty-one were condemned to terms of penal servitude, but the penalty had fallen far short of the demands of the prosecution, which had insisted on a death sentence in five cases and 20 years of penal servitude in others. The government had been sharply criticised for accepting trivial evidence in support of such serious charges. There were sharp differences in the course of the year between the Ban of Croatia and the Diet, a coalition of Serbs and Croats having demanded the dismissal of two judicial officers. This the Ban, Baron Rauch, refused and, the opposition continuing, he resigned, but the King refused to accept his resignation.

**AUSTRIAN ARCHITECTURE.** See ARCHITECTURE.

**AUSTRIAN MUSIC.** See MUSIC.

**AUTOMOBILE FIRE APPARATUS.** See under FIRE PROTECTION.

**AUTOMOBILES.** The increase in the use and manufacture of automobiles which has marked the years since the practical perfection of the use of these vehicles continued during 1910, and the year was the most prosperous in the history of the industry. It is impossible to obtain exact figures, but estimates show that the output of the United States alone was over 200,000 cars, including both pleasure and commercial cars, and the value of these cars reached more than \$300,000,000. It was estimated that over 400,000 cars were in use in the United States in 1910. A corporation was formed in New York City, in November, with a capitalization of over \$16,000,000, which took over the control of eight or ten large subsidiary companies. This followed the formation in 1909 of a similar corporation capitalized at \$60,000,000,

controlling more than thirty subsidiary companies.

**NEW MODELS.** Many manufacturers of larger cars displayed in 1910 smaller and cheaper models as the demand for this grade of cars has shown a notable increase. The demand for smaller cars is especially felt from farmers and from physicians in the rural regions. The models of 1911 show changes chiefly in the body lines and the general adaptation of the torpedo fore-door design. About the same number of models as in 1910 related to the 4-cylinder engine with somewhat longer stroke than the 6-cylinder, but there were fewer 2-cylinder cars.

The tendency toward standardization of parts continued and this resulted in the production of a lower-priced car.

**COMMERCIAL VEHICLES.** This branch of the automobile industry continued during 1910 to assume increasing importance. Large motor trucks took the place of horse-drawn vehicles to a greater extent than ever before, and great improvement was made in the construction of large motor trucks. Motor cars were more popular than ever before in the larger cities.

**LEGISLATION.** The most drastic law passed during the year was the so-called Callan Law in New York. This provided for legislative numbering and regulation of motor vehicles and licensing and regulation of chauffeurs. Every owner of a vehicle must file with the Secretary of State a verified application for registration containing a brief description of the vehicle to be registered, giving the name of the manufacturer and factory, number, character and amount of motor power and figures of horse-power according to the rating of the Association of Licensed Automobile Manufacturers, together with the name and residence of owner. No person shall operate or drive a motor vehicle who is under 18 years of age unless accompanied by a duly licensed chauffeur or the owner of the vehicle. The fee for a motor vehicle having a rating of 25-horse power or less is \$5; for one of 25 and less than 35-horse power, \$10; for one of more than 35 and less than 50, \$15; for one of 50 or more, \$25. Each motor vehicle shall have a distinctive number plate corresponding to the registration number assigned by the Secretary of State on the front and rear of such motor vehicles. Every person operating a motor vehicle on the public highway of the State is required to drive it in a careful and prudent manner and at a rate of speed that will not endanger the property of another or the life and limb of any person. The rate must not exceed 35 miles an hour. Legislation relating to automobiles was also enacted by the legislatures of Kentucky, Massachusetts, New Jersey, Virginia and Maryland. The last named State added twenty-one new sections to its automobile law. The Kentucky law prescribed fees, as did the Virginia law. For mention of these enactments, see section *Legislation* under each of the States.

**SELDEN PATENT.** In 1909 Justice Hough in the United States Court at New York handed down a decision on the Selden claim of a basic patent on gasoline automobiles. He sustained the patent, holding it to be valid and infringed by those who illegally used it. This patent was filed by George B. Selden of Rochester, N. Y., in 1879, as application for a patent on a road locomotive of a design substantially the same as that of the present day automobile. The

patent lay in the Patent Office for more than sixteen years or until 1895, during which period various American and European constructors had developed and were marketing actual cars, apparently with no knowledge of the Selden patents, but along lines generally agreeing with the description of his claim. Selden instituted suit for infringement against various firms and individuals building, selling or using the machines alleged to infringe. A number of the original manufacturing firms had conceded the validity of the patent and had formed an organization known as the Association of Licensed Automobile Manufacturers. The result of this decision was the practical elimination of independent automobile manufacturers. Most of these at once joined the Licensed Association and were then under obligations to pay royalties. This patent expires in 1912, after which date any manufacturer will be free to use the Selden designs.

**EXHIBITIONS.** The Tenth International Automobile Show opened January 1, 1910, under the auspices of the American Motor Car Manufacturers' Association. This was an association of independent manufacturers and later disbanded (see above). The Tenth Automobile Show of the Association of Licensed Automobile Manufacturers was held at Madison Square Garden, New York, January 8-15, 1910. Nearly all the important manufacturers in the Association exhibited cars, which included gasoline, electric and steam cars, pleasure and commercial vehicles, fire wagons, motor cycles, parts and accessories.

**EXPORTS AND IMPORTS.** The figures of export and import of automobiles in recent years show the steadily increasing popularity of American made cars. In 1908, 1045 cars were imported, valued at \$2,500,134; in 1909, 1624 cars, valued at \$2,905,391, were imported; and in the fiscal year 1910 1473 cars, valued at \$2,851,446 were imported. The exports of automobiles for the three years, with their value, was as follows: 1908, 2477, \$4,656,991; 1909, 3184, \$5,387,021; 1910, 6926, \$9,548,700.

**RACING EVENTS.** The principal racing events of 1910 were the Vanderbilt Cup Race, on Long Island, the Grand Prize Race, at Savannah, the National races at Elgin, Illinois, the Fairmount Park tournament at Philadelphia, the Los Angeles-Phoenix and the Santa Monica contests. The annual 24-hour races at Brighton Beach also attracted considerable attention. Never in the history of the sport were so many records broken as in the past year. New figures were made on the circular track for every distance between one mile and 75 miles, and all the speedway records from a half mile to 250 miles also fell. Barney Oldfield and Ralph de Palma were the drivers primarily responsible for this excellent showing, although praise is due also to George Robertson, Louis Chevrolet and Ray Harroun.

The Vanderbilt Cup Race was won by Harry Grant for the second year in succession. He drove an Alco car 278.08 miles in 4 hours, 15 minutes and 58 seconds. Joe Dawson in a Marmon finished second and Jack Aitken in a National third. So many accidents occurred during the running of the race that the Grand Prize struggle was transferred to Savannah. Here David Bruce-Brown, an amateur driver, astonished the experts by coming out a victor. In a Benz car he covered the 415.2 miles at an average rate of 70.55 miles an hour, establishing a new record for the international free-for-all

event. The Elgin National went to Ralph Mulford, who in a Lozier drove 305 miles, 204 feet, in 4 hours, 52 minutes, 30 seconds, an hourly average of 62.5 miles. Mulford also came near to winning the Fairmount Park races, being defeated by Zengle in a Chadwick. Zengle's time for 202.5 miles was 3 hours, 29 minutes, 7 seconds. Harvey Herrick won the race from Los Angeles to Phoenix, Ariz., a distance of 405 miles. His time in a Kissel car was 15 hours, 44 minutes. In the Santa Monica free-for-all "Teddy" Tetzlar was the victor. He also won the stripped stock chassis. His average rate per mile in the first event was 71.46 miles an hour, and in the second, 73.24 miles.

The most important of the new records established during the year follow: Speedway—1 kilometre, Oldfield in a Benz, 21.45 seconds; 1 mile, same driver, 35.63 seconds; 5 miles, de Palma in a Fiat, 3 minutes, 15.62 seconds; 10 miles, Robertson in a Simplex, 6 minutes, 35.62 seconds; 20 miles, Hearne in a Benz, 14 minutes, 6.42 seconds; 25 miles, de Palma in a Fiat, 18 minutes, 52 seconds; 50 miles, same driver, 37 minutes, 55.53 seconds; 75 miles, Harroun in a Marmon, 57 minutes, 15.79 seconds; 100 miles, same driver, 1 hour, 16 minutes, 21.9 seconds; 150 miles, Dawson in a Marmon, 2 hours, 1 minute, 9.43 seconds; 200 miles, same driver, 2 hours, 43 minutes, 20.14 seconds; 250 miles, Horan in a Lozier, 3 hours, 26 minutes, 15 seconds. Straightaway—1 mile, Oldfield in a Benz, 27.33 seconds; 2 miles, same driver, 55.87 seconds; 200 miles, de Hymel, in a Stoddard-Dayton, 3 hours, 2 minutes, 22 seconds. Circular track—1 mile, de Palma in a Fiat, 48.92 seconds; 5 miles, same driver, 4 minutes, 11.9 seconds; 10 miles, same driver, 8 minutes, 31.2 seconds; 20 miles, Oldfield in a Darracq, 18 minutes, 15 seconds; 25 miles, same driver, 22 minutes, 47 seconds.

**EVERY, SAMUEL.** See NEBRASKA, UNIVERSITY OF.

**AVIATION.** See AERONAUTICS.

**AWDEY, WILLIAM.** A bishop of the Anglican Church, died January 4, 1910. He was born in 1842 and was educated at Winchester and at Balliol College, Oxford, graduating from the latter institution in 1865. In 1867 he was ordained priest and undertook a curacy at the Church of St. Peter-in-the-East. In 1868 he was appointed Second Master at Winchester School. From 1873 to 1879 he was Head Master of St. John's College, and he succeeded Bishop Durnford as principal of the college at Chichester and Canon of the Cathedral. This position he held until 1886, when he became vicar of Amport, Hants, where he remained until 1896. In 1895 he was appointed as additional suffragan for the diocese of Winchester. He had long desired missionary service and in 1896 he accepted a call to be the first bishop appointed to the missionary diocese of Osaka. In 1898 he was translated to the diocese of South Tokio. He was a strong force in the life of the Church of Japan.

**AYLESWORTH, ALLAN B.** See CANADA, Government and History.

**AYSCOUGH, JOHN.** See LITERATURE, ENGLISH AND AMERICAN.

**AZAD-EL-MULK.** See NECROLOGY.

**BABYLONIA.** See ARCHAEOLOGY.

**BACKHOUSE, E.** See LITERATURE, ENGLISH AND AMERICAN, section Travel and Description.

**BACON.** See MEAT AND MEAT INSPECTION.

**BACTERIOLOGY.** See articles on medical subjects and SOILS.

**BAHAMAS.** A group of 20 inhabited islands and numerous uninhabited isles, islets, and rocks, lying southeast of Florida and constituting a British colony. Area, 5450 square miles; population (1901), 53,735; estimated (1908), 60,283. Nassau, the capital, is on New Providence Island, which has 12,534 inhabitants. There are government and mission schools, with a total enrollment (1908) of 9498 pupils; and 4 private secondary schools, with 154 pupils. There are sponge and turtle fisheries; shells, pearls and ambergris are produced; pineapples, oranges and tomatoes are raised for export. The area under sisal fibre plants in 1908 was 25,000 acres. Canning and sisal factories and lumber mills furnish occupation for a number of the natives. imports (1909), £373,489; exports, £171,442; tonnage entered and cleared, 1,304,651; revenue, £77,578; expenditure, £92,858; public debt, £59,447. Governor (1910), Sir William Grey Wilson.

**BAIKIE, JAMES.** See LITERATURE, ENGLISH AND AMERICAN.

**BAKER, PAGE N.** See NECROLOGY.

**BAKULIA.** See ANTHROPOLOGY AND ETHNOLOGY.

**BALAKIREFF, MILI ALEXEYEVICH.** A Russian composer and founder of the Young Russian School of Music, died June, 1910. He was born in 1837 in Nizhni-Novgorod. He showed exceptional musical ability when still a youth and studied in his native city. At the age of eighteen he knew nearly all the classics of music by heart. In 1865 he graduated from the mathematical department at the University of Kazan and went to St. Petersburg, where he was befriended by the famous musician, Glinka. He made a brilliant debut as a pianist, but gave up that career. He gathered about him several youthful enthusiasts, who were all striving for nationalism in music, and laid the foundation of the modern Russian School. Under the energetic guidance of Balakireff, they studied all the masters of music from the earliest times. He possessed a striking power of analysis as well as of imparting knowledge and he taught his pupils whatever he learned himself. They first embodied their theories in literary articles and then in musical compositions. Balakireff's own contributions to this movement were: *Songs* (1858-60); three overtures, on Russian themes (1858), on Czech themes (1867), and the Millennium (1862); incidental music to *Lear* (1858-61), a collection of 40 *National Songs* (1866), and a piano fantasy, *Islamey* (1869). Jointly with Lomakin, he founded in 1861 the free musical school, and in its classes the works of the Young Russian School were performed under his direction. In 1861 he gained a European reputation by his production and conducting of Glinka's *Ruslan and Ludmilla*. On his return he was elected conductor of the Russian Musical Society, but resigned on account of intrigues in 1869. In 1872 he withdrew from public life owing to ill health. From 1883 to 1894 he was director of the Imperial Capella, which he placed on a solid musical foundation by organizing classes in various branches of musical instruction. His fantasy for orchestra, *Tamara* (1867-1882) and his symphony in C major (1898) are his greatest works. Though not prolific, he occupied in the history of Russian music one of the most distinguished places.

**BALANCE OF TRADE.** See FINANCIAL REVIEW and UNITED STATES, section *Commerce*.

**BALCH, E. G.** See LITERATURE, ENGLISH AND AMERICAN, section *Political and Social Science*.

**BALDWIN, SIMEON E.** See CONNECTICUT.

**BALDWIN, STEPHEN WARNER.** See NEOBIOLOGY.

**BALFOUR, A. J.** See GREAT BRITAIN.

**BALKAN QUESTION.** See AUSTRIA-HUNGARY, CRETE, GREECE, TURKEY, paragraphs on *History*.

**BALL, F. ELLINGTON** See LITERATURE, ENGLISH AND AMERICAN, section *Biography*.

**BALLINGER, RICHARD A.** See CONSERVATION; PUBLIC LANDS; UNITED STATES, paragraphs on *Administration*.

**BALLOONS.** See AERONAUTICS.

**BALLOT, SHORT.** See SHORT BALLOT.

**BALLOT REFORM.** See SHORT BALLOT.

**BALTIMORE, SCHOOLS IN.** See EDUCATION IN THE UNITED STATES.

**BANANAS.** See HORTICULTURE.

**BANDELIER, A. F. A.** See LITERATURE, ENGLISH AND AMERICAN, section *Travel and Description*.

**BANK, AGRICULTURAL.** See PHILIPPINES.

**BANK, CENTRAL.** See CENTRAL BANK.

**BANKS AND BANKING.** This article contains a statement of the general banking conditions and developments of the year, treating such phases as relate to this subject as a whole. Elsewhere will be found articles on the different kinds of banks—national, State, savings, postal-savings, and loan and trust companies—as well as articles on CURRENCY, CENTRAL BANK, MONETARY COMMISSION, and FINANCIAL REVIEW.

In banking as in business, the year was one of caution, of preparation for an expected calamity which never came. This meant extensive liquidation and, at times, a contraction of loans. The severe lessons of the 1907 panic, and the belief that the business expansion in 1909 was too rapid caused hesitancy in the extension of credits. Although the volume of loans and discounts established a new record taking the country as a whole, the New York banks were considerably below their high mark of 1909. This was due to shrinkage of stock exchange dealings. This in turn was in part due to the generally high rate of interest. This was a feature in all sections of the country. The money market however suffered from no serious disturbances, and, after the great demands for crop movement in the fall had been successfully met, money became easier at the close of the year. On the whole, in spite of more than normal uneasiness, the high interest rates made it a profitable year in banking, dividends being maintained or increased.

**RESOURCES AND LIABILITIES.** The aggregate resources of the 23,095 banks reporting June 30 to the Comptroller of the Currency were \$22,450,000,000. Some State and many private banks did not report. Of this aggregate, \$12,553,695,000 represented the total resources of the 15,950 banks other than national. The resources of all banks included: loans and discounts, \$11,373,000,000; bonds and securities, \$4,614,000,000; cash, \$1,452,000,000. The 7145 national banks were credited with 43.6 per cent. of the loans and discounts of all banks, with 34.3 per cent. of the bonds and securi-

ties and with 61 per cent. of the cash. The aggregate resources were \$1,355,000,000 greater than those reported by 22,491 banks to the National Monetary Commission in 1909. They were three billions greater than the aggregate in 1908; and more than double those of 1900, when 10,382 banks reported total assets of \$10,785,000,000.

Set over against these enormous resources were the liabilities, including: capital, \$1,880,000,000; surplus and undivided profits, \$1,952,600,000; and individual deposits, \$15,283,400,000. National banks were charged with 55 per cent. of the capital, 44 per cent. of the surplus, etc., and 35 per cent. of the deposits.

The resources of the 15,950 State, private, and other banks were divided as follows: 12,166 State banks, aggregate resources, \$3,694,958,000; 638 mutual savings banks, \$3,652,449,000; 1121 stock savings banks, \$829,422,000; 934 private banks, \$160,015,000; 1091 loan and trust companies, \$4,216,850,000. These banks collectively held \$9,996,000,000 of individual deposits. Of this 30 per cent. was held by loan and trust companies; 34 per cent. by mutual savings banks; and 27 per cent. by State banks. Taken together the resources of these banks increased by 115 per cent. during the decade, being \$5,841,658,000 in 1900. In this period their capital increased 121 per cent.; their loans, 134 per cent.; bonds and other securities, 80 per cent.; deposits, 109 per cent.; cash, 153 per cent. From these data it appears that these banks increased in resources very nearly as rapidly, on a percentage basis, as national banks, in spite of the enormous growth of the latter following the act of 1900. Comparisons of the relative growth of these various banks will be found in one of the reports of the National Monetary Commission issued during the year.

**DEPOSITS AND DEPOSITORS.** In their reports of June 30, 19,194 banks gave the number of their depositors. The total was 27,977,817, of whom 16,650,935 were classed as savings depositors. The savings depositors were distributed as follows: national banks, 2,339,354; State, 2,816,561; mutual savings, 7,481,649; stock savings, 1,661,259 (includes 359,605 depositors other than savings); private, 91,844; loan and trust companies, 2,260,268. Savings deposits aggregated \$5,440,685,000, of which only 10 per cent. was in national banks, and 75 per cent. in savings banks. Other depositors were distributed in the following manner: national banks, 5,349,389; State, 4,442,572; private, 223,020; loan and trust companies, 1,311,901. The total, \$15,283,400,000, deposits in all banks were distributed in the following proportions: national banks, 34.6 per cent.; State, 17.9; savings, 26.6; private, .8; loan and trust companies, 20.1. Compared with 1900 the proportion of deposits in savings banks declined nearly 7 per cent. while that in loan and trust companies increased nearly 6 per cent. By groups of States the percentage distribution of deposits was: New England, 14.5; Eastern, 42.7; Southern, 7.4; Middle Western, 23.3; Western, 5.1; Pacific, 6.8; Islands, .2.

**BANKING POWER.** The banking power of the United States, based on the capital, surplus and undivided profits, deposits and circulation of the 23,095 reporting banks and 4168 non-reporting banks (returns estimated) aggregated \$21,049,000,000. This included: capital, \$1,957,000,000; surplus, etc., \$1,980,800,300; deposits,

\$15,859,600,000; circulation, \$675,600,000. The total banking power thus computed was \$2,200,000,000 greater than a similar computation for 1909; and \$3,400,000,000 greater than for 1908. The aggregate for the world, exclusive of the United States in 1908, was \$28,107,000,000.

**GUARANTY OF DEPOSITS.** During the year suits were brought in Kansas, Oklahoma, and Nebraska to test the constitutionality of the laws guaranteeing deposits in State banks. The laws of Nebraska and Oklahoma are compulsory on all State banks, while that of Kansas is optional. In all cases the chief plea against the law was that it violated the provisions of the Fourteenth Amendment. The case to test the Kansas law was brought by certain national banks of the State against the State bank commissioner and the State treasurer. The Circuit Court of Appeals, on May 20, refused an injunction restraining these officers from carrying out the deposit guaranty act. The Court held that the exclusion of national banks from the operation of the law was not special legislation of a sort legally objectionable; that the Fourteenth Amendment, guaranteeing the equal protection of the laws, is not thus violated, for this "merely requires that all persons subjected to such legislation shall be treated alike under like circumstances and conditions." It was argued against the law that it impaired the efficiency of national banks as instrumentalities of the national government by attracting depositors to the guaranteed State banks. The Court denied this contention on the ground that, were it true, then every measure designed to improve State banks would be invalid. The Court held that the law could only affect national banks indirectly and incidentally, if at all; that there was no effect of which the Court could take cognizance. No judgment was passed upon the merits of the guaranty plan. In the cases of the other laws the courts had held these to be legal on the ground that they were designed to increase the safety of the banking system, and to reduce the probabilities of banking panics. All of these cases were to be decided by the United States Supreme Court early in January, 1911.

**COTTON BILLS OF LADING.** As a result of losses of several million dollars due to fictitious bills, a resolution was adopted by London bankers late in July to the effect that, after October 31, American cotton bills of lading would not be accepted unless guaranteed by American bankers. The irregularities complained of were discovered in April and the action of the London bankers was based upon the report of a committee appointed to investigate. This announcement caused considerable concern among cotton shippers and banks handling their business. These bankers proposed to the European bankers that bills of lading validated by railways be accepted, such validation to be performed by a railway official other than the agent signing the bill of lading. This proposition was refused on the ground that it did not provide sufficient protection against spurious bills. A committee of American bankers announced their belief that any additional guaranty on their part would violate sound banking principles, as well as be illegal under the national banking act. They especially emphasized the fact that to require such guaranty for American bills, when it is not required for those of

any other country, would seriously discredit American bills. The foreign bankers then sent a special representative to New York to urge a plan of insuring cotton bills of lading by some surety company, at a probable cost of 5 or 6 cents per bale. This was rejected by bankers and merchants alike as discrimination against the cotton export trade and as a premium on rascality. European bankers later extended the time allowed for the provision of some means of guaranteeing the soundness of cotton bills to December 31, and very early in December withdrew the peremptory character of their demand. The final settlement of the matter, however, was not reached. Meanwhile late in November indictments had been brought against certain merchants who were responsible for the fraudulent bills; and the Interstate Commerce Commission had ordered railways to exercise greater care in the use of bills of lading and not to issue them until goods were in their possession. In view of this trouble President Taft in his message to Congress urged legislation authorizing railways to issue a bill of lading which they would guarantee.

**LEGISLATION.** The most notable piece of banking legislation passed during the year was that providing for a system of postal savings banks (q. v.). Though such banks had long been advocated by certain reformers and social workers, they did not become an imminent probability until the panic of 1907, with its collapse of confidence in many great banking institutions, showed the necessity of depositaries in which public confidence could not be shaken. The great foreign population and their familiarity with such banks in their native lands constituted another principal factor.

At the insistence of the New York Immigration Commission, the private banking law of that State was amended by requiring the licensing of all persons or firms receiving money for deposit or for transmission to foreign countries. The law requires the deposit of \$10,000 and a sufficient surety bond with the State Comptroller and public reports and inspection. Money received for transmission abroad must be sent within five days. Hotel keepers, telegraph companies, express companies, and private bankers who do a business of less than \$500 annually or file bonds for \$50,000 (\$100,000 in New York City), are exempted. The object of the law is to put a stop to the fleecing of aliens by private persons or firms posing as bankers.

A somewhat similar law in New Jersey was amended by requiring a bond of \$20,000 with satisfactory sureties from all agencies engaged in transmitting money to foreign countries. The State also authorized minors to become bank depositors, with all rights and liabilities of adult depositors.

In Massachusetts, owing to the looting of a couple of important savings banks in the past two years, a law was passed authorizing the bank commissioner to take possession of a savings bank or trust company whose stability has been impaired, charter violated, or business conducted in an unsafe manner. The commissioner is to act as a receiver, retaining control until the bank is rehabilitated or its affairs closed. Another Massachusetts act gives the bank commissioner discretionary authority over the appraisal of real estate and loans thereon, when too great loans seem to have been made. It also permits the scaling down of all accounts

by the Supreme Court when a savings bank has made unfortunate investments. This State also forbade extraordinary alterations in savings bank buildings in excess of \$10,000 cost without approval of the bank commissioner.

Kentucky authorized the formation of companies to do loan and trust, banking, and real estate title insurance business. Maryland thoroughly revised its banking laws. Ohio made the publication, orally or in writing, of statements derogatory to a bank a criminal offense. Ohio also authorized that deposits, made in the name of two persons and payable to either or survivor, may be paid to either, whether the other is living or not.

**BANKS, A. BLEECKER.** An American public official and publisher, died August 7, 1910. He was born in New York City in 1837, but when a young man removed to Albany, where he engaged in the law book publishing business, which had been established by his father, David Banks. He subsequently became the head of this firm. He was chosen Mayor of Albany for 1876-7 and for 1884-5. While Mayor he inaugurated the use of the granite block pavement in Albany and improved the sewer system. He was State Senator in 1868-71 and was a member of the Assembly from Albany County in 1862. In 1884 he was a delegate to the Democratic National Convention and assisted in the nomination of Grover Cleveland.

**BAPTISTS.** A religious denomination which was given its name in 1644 from the designation applied to certain congregations of English Separatists, by whom the ancient practice of immersion had been recently restored. The denomination was founded in the United States by Roger Williams, who established the first congregation at Providence, R. I., about the middle of the seventeenth century. There are in the United States fourteen bodies to which the name Baptist is applied in one form or another. By far the greater membership, however, is included in the regular Baptists. This main body includes the Northern Baptist Convention, the Southern Baptist Convention and the National Baptist Convention, Colored. The number of communicants in these three divisions of the larger body was in 1910 as follows: Northern Convention, 1,176,380; Southern Convention, 2,139,080; National Baptist Convention, Colored, 1,874,261. The designation and membership of the other divisions bearing the name are as follows: General Six Principle Baptists, 731 communicants, 16 churches and 10 ministers; Seventh Day Baptists, 8239 communicants, 82 churches and 96 ministers; Free Baptists, 73,536 communicants, 1303 churches and 1294 ministers; Free Will Baptists, 40,578 communicants, 623 churches and 604 ministers; General Baptists, 32,500 communicants, 538 churches and 550 ministers; Separate Baptists, 5180 communicants, 76 churches and 100 ministers; United Baptists, 13,698 communicants, 196 churches and 260 ministers; the Baptist Church of Christ, 6416 communicants, 93 churches and 99 ministers; Primitive Baptists, 102,311 communicants, 2922 churches and 1500 ministers; Primitive Colored Baptists, 35,076 communicants, 797 churches and 1480 ministers; Two-Seed-in-the-Spirit Predestinarian Baptists, 781 communicants, 55 churches and 35 ministers; Church of God and Saints of Christ, 2823 communicants, 48 churches and 75 ministers. The total

number of Baptists in the United States in 1910 was 5,510,590. These statistics of membership are those prepared by Dr. H. K. Carroll for the *Christian Advocate*, published in 1910. The *American Baptist Year Book* gives the total number of Baptist communicants as 5,266,369 with 33,909 ordained ministers and 49,035 churches.

The religious census taken by the United States Census Bureau in 1906 and published in 1909-10 gives as the total number of communicants in all Baptist bodies in 1906, 5,662,234 as compared with 3,712,468 in 1890, an increase from 1890 to 1906 of 1,949,766 or 52.5 per cent. In the main bodies in that year there were 47,910 organizations. At the beginning of 1909 the Sunday schools in the denomination numbered 33,633, with 2,498,354 scholars and 248,836 officers and teachers. The value of the church property was \$133,528,647. The denomination contributed for foreign missions, \$981,332; for home missions, \$820,735; for education, \$329,673; and for miscellaneous expenses, \$1,470,916. The total contributions for the support of the work of the denomination during 1909 were \$24,122,911. The denomination supports missions in Burma, Assam, South India, China, Japan, Africa, Philippine Islands and in Europe. Home missions are carried on in different parts of the United States and the total number of missionaries supported wholly or in part by the Home Missionary Society was, in 1909, 1560. The Southern Baptist Convention, which is an organization of the Southern Baptists, maintains missions in South America, Italy, Africa, China and Japan. Among other organizations, whose titles sufficiently indicate their purposes, are the American Baptist Publication Society, the American Baptist Home Missionary Society, and the Women's Baptist Foreign Missionary Society. The German Baptist Conference has general charge of work among the Germans and the Swedish Baptist Conference has charge of the work among the Swedes of the Northwest. The church maintains ten theological seminaries, with a total membership in 1909 of 1349. The endowment of these institutions amounted to \$4,110,500. There are 86 universities and colleges under the denominational control in the United States. These had in 1909 32,495 students and an endowment of \$30,099,419. In addition to this there are 79 academies, seminaries, institutes and training schools. The denomination maintains many charitable institutions in different parts of the country.

According to the *American Baptist Year Book* for 1910, the total number of Baptists in the world in 1910 was 6,240,272. The figures for the United States are given above. There were in Europe 588,727 communicants; in Asia, 150,424; in Australasia, 27,195; in Africa, 16,298, and in South America, 6094.

The meeting of the Northern Baptist Convention in Chicago May 3-10, 1910, was one of the most successful and significant meetings of the denomination in recent years. Of particular importance was the establishment of the relations of the Convention with the national missionary societies, and the reports of various commissions on educational, social and religious work. The attendance at the Convention was very large. More than 3000 delegates and visitors were registered. Of these over 2300 were

regularly enrolled delegates. A movement has been on foot for several years for a union with the regular Baptists of several other branches of the denomination, particularly of the Free Baptists. This union is designed to include chiefly the missionary work of the two organizations. Definite action was taken in 1910.

**BAPTISTS, FREE**, sometimes called **FREE WILL BAPTISTS**. A religious denomination founded in 1780 by Benjamin Randall, who established a church at Durham, N. H., after he had left the regular Baptist denomination because of his disbelief in the doctrine of election. The denomination is strongest in New England, but has a considerable strength in the West. According to a religious census made by the United States government in 1906, and published in 1910, the total number of communicants was 81,359, 1111 church edifices and 1160 ministers. The membership had not changed materially in 1910. The Free Baptists do not carry on any philanthropic enterprises distinctively denominational in character. They are, however, increasingly interested in matters pertaining to the general welfare of communicants and are sharing more closely in the interdenominational work of the churches. Foreign missions are carried on through the Foreign Missionary Society and home missions through the Home Missionary Society. The General Conference, held in July at Old Orchard, Me., adopted the basis of union or coöperation in missionary work with the Baptists which the Northern Convention had previously adopted in May. The basis of coöperation was planned to go into effect in 1911. It means ultimate organic union. This movement has suffered no check since its beginning six years previous. During this time the denomination has not suffered appreciably, but has sustained its missions at home and abroad, its educational and publication institutions. The membership of the denomination, however, has not increased, owing to the fact of its being in the country. The denomination maintains several colleges, among them Bates College at Lewiston, Me., Rio Grande College at Rio Grande, Ohio, Storer College at Harpers Ferry, W. Va., Parker College at Winnebago, Minn., and Hillsdale College at Hillsdale, Mich. In connection with the latter institution a theological seminary is maintained. The official organ of the denomination is *The Morning Star*, published in Boston. Reverend H. M. Ford, D. D., of Hillsdale, Mich., is the corresponding secretary of the General Conference.

**BAPTIST YOUNG PEOPLE'S UNION OF AMERICA**. An organization which includes all the young people's societies in Baptist churches in the United States and Canada. Its purpose is the carrying on of educational work, designed to train young people for efficiency in Christian work. The union was organized in Chicago in 1891. Its headquarters are in Philadelphia and Chicago. The union publishes two monthly magazines, *Service* for the senior department, and *Our Junior* for the junior department. These two are now published by the American Baptist Publication Society in Philadelphia. In 1910 the membership was estimated at 600,000. It is international in scope, including all the provinces of Canada as well as the United States. The following are the international officers in 1910: President, W. J. Williamson, D. D., St. Louis; Vice-Presidents,

George W. Truett, D. D., Dallas, Texas; A. H. Vautier, Philadelphia; Rev. H. H. Bingham, London, Ont.; General Secretary, Rev. George T. Webb, Philadelphia; Recording Secretary, Rev. H. W. Reed, Rock Island, Ill.; Treasurer, H. B. Osgood, Chicago, Ill. The union holds annual meetings.

**BAR ASSOCIATION, AMERICAN**. An organization of the leading lawyers of the United States, founded in 1878. It meets annually for the purpose of discussing matters of interest to the profession. Its object is to advance the science of jurisprudence and to promote the administration of justice and the uniformity of legislation throughout the Union. The thirty-third annual meeting of the Association was held at Chattanooga, Tenn., in September, 1910. The retiring president, Charles F. Libby, gave a résumé of the most important legislation enacted in the various States and by Congress in 1910. Committees appointed on the reform of judicial procedure, uniform divorce laws and other important matters with which the Association is concerned, made reports. The officers chosen were: President, Edgar H. Farrar; Secretary, George Whitelock, and Treasurer, Frederick E. Wadhams. Each State and Territory is represented by one vice-president and one member of the General Council. The membership of the Association in 1910 was about 4000.

**BARBADOS**. An island of the West Indies; a British colony. Area, 166 square miles; population (1891), 182,306; estimated (1908), 194,477. Bridgetown, the capital, has about 35,000 inhabitants; Speightstown, 1500. There are 165 primary schools, with an attendance (1908) of 15,932 pupils; 10 higher schools, with 590; and Codrington College, with 17 students. Of the total area about 74,000 acres are under cultivation (35,000 under sugar-cane). The sugar yield in 1908 was about 40,000 hogsheads and 54,428 puncheons of molasses; the cotton crop was 985,256 pounds, valued at £61,578. There are 388 sugar mills and 5 rum distilleries. The fisheries employ about 1000 persons and the annual catch is valued at about £17,000. Imports (1909-10), £1,119,343; exports, £888,086; revenue, £195,803; expenditure, £199,624; public debt, £416,900. Governor (1910), Sir Leslie Probyn.

**BARBOUX, HENRI**. A French lawyer and Academician, died April 25, 1910. He was born at Châteauroux in 1834 and was educated for the bar. He soon acquired celebrity as a pleader, and figured prominently in the Panama canal cases, and in the litigation over Sarah Bernhardt's desertion of the Théâtre Français, and in practically all the great trials of the last half century in which the principles of the commercial law have been involved. He was an advocate of the Cour d' Appel. In 1908 he was chosen member of the French Academy as the best living exponent of French forensic eloquence, and was for some time president of the French Bar Association and vice-president of the Prison Association.

**BARCLAY, FLORENCE**. See LITERATURE, ENGLISH AND AMERICAN.

**BARGE CANAL**, NEW YORK. See CANALS.

**BARING, EVELYN**. See LITERATURE, ENGLISH AND AMERICAN, section *Political and Social Science*.

**BARIIUM**. See ATOMIC WEIGHTS.

**BARKER, J. ELLIS**. See LITERATURE, ENGLISH AND AMERICAN.

**BARLEY.** The following data published by the International Institute of Agriculture, Rome, are final for Germany, Spain, Hungary, Italy, Canada and the United States and preliminary for all other countries:

THE WORLD'S BARLEY PRODUCTION IN 1909 AND 1910:

Countries.	1909.	1910.
	<i>Bushels</i>	<i>Bushels</i>
United States .....	170,174,168	162,122,380
Canada .....	55,362,285	45,118,300
Germany .....	160,468,886	133,244,855
Austria .....	79,165,520	67,574,655
Bulgaria .....	9,336,992	15,743,700
Denmark .....	23,324,810	21,282,090
Spain .....	81,526,543	76,259,830
France .....	47,966,418	45,790,529
Great Britain and Ireland .....	71,771,103	67,429,290
Hungary (incl. Croatia and Slavonia) .....	74,723,208	65,288,160
Italy .....	10,944,496	9,476,500
Luxemburg .....	64,870	58,600
Norway .....	2,729,094	2,970,730
Netherlands .....	3,319,029	3,380,560
Rumania .....	20,629,810	29,584,900
Russia .....	473,862,420	459,241,560
Sweden .....	13,940,868	15,544,940
Switzerland .....	472,770	459,000
Japan .....	87,939,705	89,707,120
Algeria .....	50,955,392	48,677,050
Tunis .....	9,180,000	6,655,500
Chile .....	2,060,910 (1909-10)	
New Zealand .....	1,061,814 (1909-10)	

The world's barley production in 1910 was below the average. The total yield was estimated at about 1,175,000,000 bushels, as compared with the yield of 1,477,789,000 bushels the year before. In most countries dry weather was the principal factor in reducing the crop. In the United States and Canada the barley crop was reduced by the same unfavorable conditions that interfered with the production of spring wheat and oats. In the spring of 1910 weather and soil conditions favored a ready germination of the seed and a good start of the crop. The preceding fall and winter had been dry and the moisture supply of the soil was insufficient for the proper growth of the crop later in the season when droughts ensued. Although the area devoted to barley in the United States in 1910 was greater by 246,000 acres, the production was less by more than 8,000,000 bushels than the year before. The Canadian yield for the year was 39,388,000 bushels, or over 15,000,000 bushels less than in 1909. The average yield per acre in the United States was 22.4 bushels, the lowest since 1900. In North Dakota where the drought was very severe the average yield was only 5.5 bushels per acre. All States excepting 13 reported barley yields, the more important among them being as follows: California produced 43,400,000 bushels on 1,400,000 acres; Minnesota, 26,985,000 bushels on 1,285,000 acres; Wisconsin, 22,429,000 bushels on 866,000 acres; South Dakota 18,655,000 bushels on 1,025,000 acres; and Iowa 15,045,000 bushels on 510,000 acres. All other States produced less than 6,000,000 bushels. The barley production of the United States for the year represented a farm value of \$93,785,000, which has been exceeded only in 1907. A higher price than in 1908 and 1909 in a measure offset the lower yield. The total value of the crop in 1910 was 16 per cent. above the average of the previous 5 years. According to the report of the Secretary of Agriculture the share of the North Atlantic States in the production of the

barley crop has declined since 1889 from 12.2 to 2 per cent., while the share of the North Central States has increased from 60.3 to 62.8 per cent. and that of the Western States from 26.9 to 34.4 per cent. The exports of barley from the United States in 1910 amounted to about 4,310,000 bushels, as compared with 6,580,000 bushels in 1909.

**BARNARD COLLEGE.** See COLUMBIA UNIVERSITY.

**BARNES, REID.** An American botanist, died February 24, 1910. He was born in 1859. From 1880 to 1886 he was professor of natural history at Purdue University and from 1886 to 1898 was professor of botany at the University of Wisconsin. In the latter year he became professor of plant physiology at the University of Chicago and this position he occupied at the time of his death. He was co-editor of the *Botanical Gazette* and was joint author of *Keys to the Genera and Species of North American Mosses, Plant Life, and Outlines of Plant Life*.

**BAROTSELAND.** See RHODESIA.

**BARRETT, JOSEPH HARTWELL.** An American political writer and public official, died April 10, 1910. He was born at Ludlow, Vt., in 1824 and graduated from Middlebury College in 1845. In 1851 he was admitted to the bar. After serving two terms in the Vermont Legislature he removed to Cincinnati, O. He became political editor of the Cincinnati *Daily Gazette*, serving in that capacity from 1857 to 1861. He took a prominent part in the Republican politics of the State and from 1861 to 1868 was United States Commissioner of Pensions. From 1868 to 1879 he was engaged in editorial work in Cincinnati. He was the author of *Life of Abraham Lincoln, 1860, 1864, 1865; Abraham Lincoln and his Presidency* (1904), and contributed to various reviews.

**BARREN JACK DAM.** See DAMS.

**BARBON, JOHN.** See NECROLOGY.

**BARRY, ALFRED.** A bishop of the Anglican Church, died April 1, 1910. He was born in London in 1826 and was educated at King's College, London, and Trinity College, Cambridge. From 1849 to 1883 he was principal and head master in several educational institutions, including the Leeds Grammar School, Cheltenham College and King's College, London. From 1871 to 1881 he was Canon of Worcester, and from 1875 to 1884 was chaplain to the Queen. He was appointed Bishop of Sydney and Primate of Australia in 1884 and filled this office until 1889. In that year he was appointed assistant bishop in the diocese of Rochester and here he remained until 1891, when he was appointed Canon of Windsor. In 1897 he became assistant bishop in West London, and he held this position until the time of his death. He was a well known scholar, and among his published works are the following: *Introduction to the Old Testament* (1850); *Boyle Lectures* (1876, 1877, 1878); *Christianity and Socialism* (1891); *Bampton Lectures* (1892); *Hulsean Lectures* (1895); *The Position of the Laity* (1903); *The Christian Sunday: Its History, etc.* (1904).

**BARRYMORE, ETHEL.** See DRAMA.

**BARTLETT, EDWARD THEODORE.** An American jurist, died May 3, 1910. He was born in 1841 at Skaneateles, N. Y. After graduating from Union College, he was admitted to the bar in 1862 and practiced in Skaneateles and Syra-

cuse until 1868. He then removed to New York City, where he soon built up a large practice. In 1870 he took an active part in the fight which the Bar Association was waging against a corrupt judiciary, and he was for years a member of the judiciary committee and chairman of the committee on admission of the Association. In 1891 he was nominated for the Supreme Court but was defeated. A few years later he was nominated for the Court of Appeals and was elected after a close contest. He was re-elected in 1897 and would have retained this position until 1911 when he would have been retired for age.

**BARTLETT, ELLIS ASHMEAD.** See LITERATURE, ENGLISH AND AMERICAN, section *Travel and Description*.

**BARTLEY, Sir GEORGE CHRISTOPHER TROUT.** An English philanthropist, died September 14, 1910. He was born in 1842 and was educated at the University College School. Until 1880 he was assistant director of the science division of the Science and Art Department of that institution. In the latter year he resigned to stand for Parliament. He was a member of Parliament from North Islington from 1885 to 1906. In 1875 he established the National Penny Bank to promote thrift. He was the author of a number of books, including *A Square Mile in the East of London* (1870), *Schools for the People* (1871), *Provident Knowledge Papers* (1872), *The Seven Ages of a Village Pauper* (1874), and *The Parish Net* (1875).

**BASEBALL.** The feature of the 1910 baseball season was the winning of the world's championship by the Philadelphia Americans. It was the third time in the history of the two major leagues that the younger organization carried off the laurels. The Chicago Club of the National League, which for the fourth year since 1906 won the pennant in its organization, only succeeded in capturing one game out of five in the world's series. In the American League, Philadelphia took a long lead early in the season and was never closely pressed. The club scored 102 victories and was defeated 48 times. The standing of the other American League clubs follows: New York, won 88, lost 63; Detroit, won 86, lost 68; Boston, won 81, lost 72; Cleveland, won 71, lost 81; Chicago, won 68, lost 85; Washington, won 66, lost 85; St. Louis, won 47, lost 107. In the National League, Chicago, the winning team, finished the season with 104 victories and 50 defeats. Pittsburg, which won the pennant the preceding year played very erratically in the early games and had to be satisfied with third position at the end of the race. New York won second place, with 91 victories and 63 defeats. The other teams and their records follow: Pittsburg, won 86, lost 67; Philadelphia won 78, lost 75; Cincinnati won 75, lost 79; Brooklyn won 64, lost 90; St. Louis, won 63, lost 90; Boston won 53, lost 100. The attendance at the major league contests showed a slight falling off as compared with 1909, totalling 7,279,157. The National League outdrew the American by 105,483, while the previous year the American League games attracted 100,000 more persons than the National. This change is attributed to the fact that the race in the National League was much closer than in the American. The city which had the largest attendance was Chicago, where 1,220,761 persons witnessed the games. The total attendance in the games for

the world's championship was 124,421, or more than 20,000 less than the year before. The receipts, \$174,000, also showed a falling off. The score of these games follows: Philadelphia 4, Chicago 1; Philadelphia 9, Chicago 3; Philadelphia 12, Chicago 5; Chicago 4, Philadelphia 3; Philadelphia 7, Chicago 2. The batting averages were: Philadelphia .317, Chicago .221; and the fielding averages: Philadelphia .945, Chicago .954. The all-round work of Collins, the Philadelphia's second baseman, and the pitching of Coombs of the same team were noteworthy features of the series. The champion batter of the year was Cobb of the Detroit Americans, who won this distinction for the second time in succession. He played in 140 games, made 196 hits and scored 106 runs, finishing the season with an average of .385. Lajoie of the Cleveland Americans also made a remarkable showing with an average of .384. In the National League the leading batter was Magee of Philadelphia, who obtained an average of .331. The most successful pitchers in the American League were Bender and Coombs of Philadelphia and Ford of New York; and in the National, Cole of Chicago and Mathewson and Crandall of New York. A post-season series which attracted considerable interest locally was played between the New York Americans and the New York Nationals. Thanks to the masterly pitching of Mathewson the "Giants" won with four victories and two defeats. One game was a tie. The principal new records made during the year were the playing of a full nine-inning game in 32 minutes by the Mobile and Atlanta clubs of the Southern League and the throwing of the baseball by Lejeune of the Evansville Club of the Central League 426 feet 6¼ inches. This is 25 feet 10¾ inches further than the old record made by Hatfield 36 years ago. The pennant winners in the principal minor leagues in 1910 were: Eastern League, Rochester; American Association, Minneapolis; Southern League, New Orleans; Western League, Sioux City; New York State League, Wilkes-Barre; Tri-State League, Altoona; Connecticut League, Waterbury.

Princeton by its victories over Yale and Harvard may be considered as the champion college team of the year. The scores in Princeton's most important games were: Princeton 2, Pennsylvania 3; Princeton 2, Fordham 3; Princeton 6, Harvard 2; Princeton 7, Harvard 3; Princeton 0, Lafayette 3; Princeton 6, Pennsylvania 6; Princeton 9, Amherst 5; Princeton 2, Yale 4; Princeton 4, Holy Cross 0; Princeton 6, Yale 1; Princeton 3, Yale 2. Yale defeated Andover 9 to 4, Amherst 3 to 2, Columbia 8 to 6, Princeton 4 to 2, and Harvard 12 to 5 and 10 to 9; and lost to Williams 1 to 3, Pennsylvania 4 to 5, Brown 3 to 4, Syracuse 1 to 3, Princeton 1 to 6 and 2 to 3, and Harvard 2 to 3. Harvard won from Brown 6 to 1, Andover 7 to 1, Exeter 3 to 0, Cornell 8 to 1, and Yale 3 to 2. Harvard lost to Amherst 1 to 6. Prince 2 to 6 and 3 to 7, Dartmouth 1 to 2, Fordham 2 to 5, and Yale 5 to 12 and 9 to 10. Pennsylvania's principal victories were over Princeton 3 to 2, Yale 5 to 4, Cornell 2 to 1 and again 2 to 1, and Syracuse 14 to 0. Pennsylvania was defeated by Cornell 0 to 6, Lafayette 0 to 2, and Brown 1 to 2.

**BASKETBALL.** The fact that there was

no college basketball league in existence in 1910 made it impossible to pick a champion team. Four institutions which were represented in the league of 1909, however, finally came to an agreement and played a series of games. The teams were those of Columbia, Princeton, Pennsylvania and Yale. Columbia made the best showing, scoring a total of 165 points as against a score of 80 made by the opposing "fives." The New York College defeated Princeton by 40 to 9 and 27 to 15; Yale by 29 to 21 and 17 to 11; and Pennsylvania by 33 to 11 and 19 to 13. Pennsylvania defeated Yale 31 to 20 and Princeton 33 to 15 and lost to Columbia 11 to 33 and 13 to 19, Yale 18 to 19 and Princeton 20 to 31. Yale defeated Princeton 32 to 22 and Pennsylvania 19 to 18 and lost to Columbia 21 to 29, to Princeton 24 to 38 and to Pennsylvania 20 to 31. Princeton defeated Pennsylvania 31 to 20 and Yale 38 to 24 and lost to Columbia 9 to 40, and 15 to 27, to Pennsylvania 15 to 33 and to Yale 22 to 32. New York University had another most successful season, scoring 463 points as against 332 scored by the opposing teams. The N. Y. U. five was victorious over Pratt by 34 to 18, Swarthmore by 22 to 13, Yale by 18 to 16, Union by 16 to 12, Rochester by 34 to 30, Princeton by 34 to 18, Syracuse by 16 to 9, and Colgate by 19 to 18. The only teams to defeat New York were Colgate by 25 to 20, Rochester by 25 to 17 and Wesleyan by 33 to 28. Williams and Wesleyan were rival claimants for the championship of the New England colleges.

**BASUTOLAND.** An elevated plateau north-east of the Cape of Good Hope Province, directly under the authority of Great Britain. Area, 10,293 square miles. Population (census of 1904), 347,731 natives and 805 whites; estimated (1907) 351,000. Capital and largest town, Maseru, with 13,000 inhabitants. There are 12,195 pupils in the 248 schools, which receive a grant in aid of £12,000. It is an excellent grain region, and large herds of cattle are found on well-watered and extensive pastures. Wool, wheat, mealies and Kaffir corn are raised; iron, copper and coal are found. The imports (chiefly ploughs, woolen and cotton goods, iron and tinware) in 1908-9 were valued at £239,830; exports (grain, wool and livestock), £193,122. Basutoland belongs to the South African Customs Union. The roads are fair, but there are no navigable waterways. There are 16 miles of railway, connecting Maseru with the Bloemfontein-Modderpoort line at Marseilles station. Revenue and expenditure (1909-10), £119,974 and £127,437 respectively. There is no public debt. The paramount chief is Letsie. A resident commissioner (1910, Herbert Cecil Sloley) administers the territory under the direction of the governor-general for the Union of South Africa.

**BATAILLE, M.** See FRENCH LITERATURE.

**BATH TUB TRUST.** See TRUSTS.

**BATTLESHIPS.** All-big-gun-one-calibre battleships of great displacement, generally turbine-driven, are being built by all the great naval powers of Europe, by the United States, Japan, Argentina, and Brazil. The British have adopted the American plan of mounting the turrets in the centre-line, and not in echelon; and the 13.5" gun has been introduced to replace the 12". The battle cruiser *Lion*, 26,350 tons displacement, launched on August 6, 1910, will

be the first ship to carry the new type of 13.5" guns, mounting 8 13.5" guns in four turrets on the centre-line. The *Super-Lion* has not yet been ordered. It will displace 27,200 tons, develop 82,000 H. P., and make 30 or 31 knots. It will mount the same guns as the *Lion*, 8 13" and 16 4.7" guns. Vickers, Sons & Maxim will probably be the builders, as they will launch the *Princess Royal* soon. The United States has adopted the 14" gun after exhaustive tests of an experimental gun; and, even before these guns are in service, there are enthusiasts who would have them superseded by 16" guns in the two battleships Congress will be asked to provide at the present session (December, 1910).

The new battleships *Texas* and *New York*, 27,000 tons displacement, provided for in the last naval appropriation, will carry 10 14" guns. The daily press reports that Germany also has been experimenting with 14" guns. In the latest German battleships, the 12" guns have replaced the 11". Italy and Russia have adopted the triple-gun turret. It is reported that the *Dante Alighieri*, 19,500 tons, is to carry 10 12" guns in four turrets on the centre-line, the lower turrets being triple; and that the three ships of the *Conte di Cavour* class will carry 13 12" guns in five turrets, all on the centre-line, the three lower turrets being triple. The new Russian ships will carry 12 12" guns in four triple-gun turrets, all on the centre-line.

The secondary battery, 12 pdrs. in the *Dreadnought* of 1906, become 4" guns in the *Bellerophon* and *St. Vincent* types; 5" in the *Neptune*, and 6" in later battleships and battle cruisers of the British navy. The 5" gun has been adopted for secondary batteries in the U. S. Navy. It was soon decided that the 3" gun could not stop the modern torpedo vessel. Then improvements were made in torpedoes which gave a range of 4000 yards; and now the British Navy has a torpedo with a range of 7000 yards, making a 5" or 6" gun necessary for the torpedo defense battery. The intermediate gun, therefore, again forms part of the battery of a battleship. The opponents of the all-big-gun-one-calibre ship claim that the "hail of fire" from a battery of intermediate guns will demoralize and destroy the personnel and wreck the unarmed parts of the enemy; and therefore play an important part in putting him out of action. The all-big-gun school claim that battles will be fought at long range; that the intermediate gun would be useless except for torpedo defense, and that their fire would interfere with the control of the fire from the heavy guns. Their opponents answer that although battles may commence at longer range than in the past, no decisive battle can be fought except at medium ranges on account of average conditions of weather at sea, and the small percentage of hits at long range. This initial long range is the result of the increased range, speed and accuracy of the torpedo, and the adoption of modern heavy guns with high muzzle velocity, and flat trajectory, and increased danger space. The Japanese intermediate guns did do frightful damage to the Russian ships, but they were replaced on battleships solely as torpedo defense guns, however useful they may prove to be at other times. It is said that one of the special features of the British *Lion* and *Orion* classes is the disappearing anti-torpedo armament, made possible by all the big guns being placed on the centre line.

Dreadnoughts have increased greatly in size;

super-Dreadnoughts have had to make way for the very "latest greatest." The *Dreadnought*, completed in 1906, of 17,900 tons, yields to the latest *Super-Dreadnought* of 23,500 tons displacement and the *Orion*, launched August 20, 1910; and the battle cruiser *Indefatigable*, 19,200 tons (improved *Invincible* class), laid down in February, 1909, is followed by the *Lion* class, 26,350 tons. The United States is practically building ships of 27,000 tons; and plans have been made for a 31,000 ton ship.

Orders for the five British capital ships of the 1910 programme were placed in December. They are to be ready in the spring of 1913; and will displace 27,000 tons; will carry 12 13.5" guns, and a strong secondary battery, with ample protection.

Vickers, Sons & Maxim have secured a contract to build a Japanese Dreadnought battle cruiser, to be from 27,000 to 28,000 displacement, and to cost about £2,500,000.

The Fore River Ship & Engine Co. are building two Dreadnoughts for Argentina: displacement 27,500 tons; turbines of 39,500 H. P.; speed 22.5 knots; to make 3600 miles at full speed, and 7200 miles at 15 knots, and 10,000 at eleven; besides 4500 tons of coal, 660 tons of oil fuel will be carried, and the displacement at full load will be 30,000 tons; complete armor belt; 12 12" guns in six turrets, four on centre-line, and two in echelon; 12 6" and 12 4" guns; two submarine tubes for 22" torpedo. They are improved Brazilian Dreadnoughts.

England, Germany, and Japan are still building so-called armored cruisers (battle cruisers). The most recent British ships are greatly superior to the contemporary battleships in displacement and speed, but carry fewer heavy guns of the same calibre, and have less armor protection. They are really fast battleships; and are now so accepted.

We are used to the statement that a battleship is a compromise, but the greater the tonnage the less is the compromise. The battleship *Orion* is designed for 14 knots, the battle cruiser *Lion* for 28; while the *Dreadnought* makes 21, and the *Invincible* 25. It is said that no British armored vessel will be built hereafter that will not make more than 21 knots.

Increased tonnage has permitted better armor protection. Battleships generally only carried armor amidships; but are now protected throughout their whole length.

The underwater body of battleships is still unprotected against mines, and the attack of submarines and torpedo craft, except by a minute water-tight subdivision.

Simplicity of fire control was a large factor in the adoption of the all-big-gun-one-calibre ship. The high lattice fire control towers on American ships have not found favor in Europe, where it is thought that excessive vibration will interfere with their efficiency. The British still use tripod masts; it is stated that the *Hercules* and *Colossus* will have only one tripod mast each, mounted abaft the forward funnel. On some ships separate fire control stations have been erected; and the tendency now is toward armored stations. It is likely that high unprotected stations will be used for long range firing; and that the lower armored stations will be reserved for medium ranges. In connection with the low-armored fire control station, experiments have been made in "spotting" by means of an extension of the periscope system used in submarines;

it is thought that the Germans have adopted some such system. See NAVAL PROGRESS.

**BAUXITE.** See MINERAL PRODUCTION.

**BAWDEN, H. H.** See LITERATURE, ENGLISH AND AMERICAN, section *Philosophy and Religion*.

**BAZIN, RENÉ.** See FRENCH LITERATURE.

**BEACH, HENRY HARRIS AUBREY.** An American surgeon, died June 28, 1910. He was born at Middletown, Conn., in 1833 and was educated at the public schools. From 1864-66 he served in the hospital service of the United States Army. He graduated from the medical department of Harvard College in 1868 and from that time until the time of his death was engaged in the practice of his profession in Boston. From 1869-79 he was assistant demonstrator in anatomy at Harvard, and from 1879 to 1884 was demonstrator. He was instructor in clinical surgery from 1898 to 1900 and lecturer from 1900 to 1906. In 1907 he was appointed consulting surgeon to the Massachusetts General Hospital. In 1868-9 he was assistant editor of the *Boston Medical and Surgical Journal*. He was a member of many medical and other learned societies and contributed many articles and papers to medical journals and transactions of medical societies.

**BEACH, REX.** See LITERATURE, ENGLISH AND AMERICAN.

**BEACONSFIELD, EARL OF.** See LITERATURE, ENGLISH AND AMERICAN, section *Biography*.

**BEAN, C. E. W.** See LITERATURE, ENGLISH AND AMERICAN.

**BEARD, C. A.** See LITERATURE, ENGLISH AND AMERICAN, section *Political and Social Science*.

**BEARD, DAN.** See BOY SCOUTS OF AMERICA.

**BEAR VALLEY DAM, CAL.** See DAMS.

**BEAUX ARTS ARCHITECTS, SOCIETY OF.** An association of American graduates of the École des Beaux Arts of Paris. The society originated in 1902 a system of educational work which has had great influence on architectural study in the United States. This system includes the establishment in different cities of the United States of ateliers or schools in which instruction on architecture may be obtained. The instruction is based on that given in the École des Beaux Arts. The programmes of the society are also used in many of the colleges and universities of the country, and by arrangement with several universities which have schools of architecture students of the society may receive instruction in the night courses and university extension lectures of these universities. The ateliers in each city are formed by a group of students who wish to carry on the study of architecture. A master or patron is chosen or appointed, and the atelier is supported by contributions from the students. The work of the patron or master is given free. Each year the Committee on Education of the society issues a certain number of programmes which include the problems to be worked out at the different ateliers. These competitions are designated "Class A" and "Class B" competitions.

The work of the society has shown great progress since the organization of its educational department in 1902. In that time it has grown from 51 to approximately 600 registered students for the year 1909-10. Before the close of the season in July, 1910, 729 students had actually registered, practically all of whom had entered

into at least one of the twenty-nine "Class A" or "Class B" competitions.

The society awards four prizes: the Warren Prize, offered for general excellence in planning a group of buildings; the Pupin Prize, gift of Professor M. I. Pupin of Columbia University, offered for decorative treatment of some scientific appliance; the Goelet Prize, gift of Mr. Robert W. Goelet, offered for excellence in planning a city block; and the Bacon Prize, gift of Mr. Robert Bacon, offered in December for the greatest number of honors obtained in Class A. The amount of the prize for the first three prizes named was \$50 for the first prize. The Bacon Prize is \$100 for the first prize and \$60 for the second prize. The society offers a Paris Prize, the gift of Mr. Robert Bacon. The winner of this prize is chosen to pursue his studies in the first class in the École des Beaux Arts, Paris, according to the regulations for this end adopted by the French Minister of Public Instruction and Fine Arts. The winner of the prize receives \$250 quarterly for two years and a half, dating from his departure for Europe. All who entered the competition must have been under 27 years of age on July 1, 1910. Ateliers have been organized in the following cities: New York City, 6; Los Angeles; Chicago, 2; Baltimore, Buffalo, Portland, Ore., Seattle, St. Louis, Milwaukee, Cleveland, Washington, Boston, Newark, N. J., and Montreal, Canada. Sixteen universities, colleges and technical schools used the programme of the society for its competitions in 1910-11. The chairman of the Committee on Education of the society is James Otis Post, 347 Fifth Avenue, New York City.

**BECHUANALAND PROTECTORATE.** A British South African possession lying between the Malopo and Zambesi rivers, and stretching from the Transvaal to German Southwest Africa. Area, about 275,000 sq. miles; population (estimated 1907), 132,000 natives and 1100 whites. Serowe, the capital of the Bamangwato tribe, has 17,000 inhabitants. The Bakhatla, Bakwena, Bangwaketse, and the Batawana are other important tribes. There are government-aided mission schools. Cattle-raising and agriculture are the principal industries. The imports for 1908 were valued at £90,838; exports, £64,538 (not including the proceeds from the sale of 3983 head of cattle, about £25,000). Exports of raw gold were valued at £20,188. The protectorate belongs to the South African Customs Union. Both the railway and telegraph from the Cape of Good Hope to Rhodesia traverse the protectorate. There are 12 post-offices. Revenue and expenditure for 1909-10 were given at £49,787 and £65,267 respectively; grant in aid (1908-9) £39,000; (1909-10) £31,000. The tribal chiefs are under the direction of a resident-commissioner (1910, Lieut.-Col. F. W. Panzera), having headquarters at Mafeking (British Bechuanaland) and acting under the governor-general for the Union of South Africa.

**BEE.** See ENTOMOLOGY.

**BEEBE, C. W.** See LITERATURE, ENGLISH AND AMERICAN, section *Travel and Description*.

**BEEBE, M. B.** See LITERATURE, ENGLISH AND AMERICAN, section *Travel and Description*.

**BEEF.** See MEAT AND MEAT INSPECTION; STOCK-RAISING.

**BEEF TRUST.** See TRUSTS.

**BEEB.** See LIQUORS.

**BEEET SUGAR.** See SUGAR.

**BEGBIE, HAROLD.** See LITERATURE, ENGLISH

AND AMERICAN, section *Philosophy and Religion*.

**BEITH, I. H.** See LITERATURE, AMERICAN AND ENGLISH..

**BELDEN, JESSIE (VAN ZILE).** An American author, died February 2, 1910. She was born at Troy, N. Y., 1857, and was educated at Troy Female Seminary and St. Agnes' School, Albany. She married, in 1878, James Mead Belden. In 1898-9 she was State Regent of the Daughters of the American Revolution. She was appointed by Governor Roosevelt and reappointed by Governor Odell a member of the Board of Managers of the State Reformatory, Hudson, N. Y. Among her published writings are the following: *Fate at the Door* (1895); *The King's Ward* (1898); and *Antonia*. She also contributed many other stories to various magazines.

**BELFAST HARBOR.** See DOCKS AND HARBORS.

**BELGIAN ARCHITECTURE.** See ARCHITECTURE.

**BELGIAN CONGO.** See CONGO, BELGIAN.

**BELGIAN RAILWAY COMPANY.** See EXPLORATION.

**BELGIAN SWAMP LANDS.** See DRAINAGE.

**BELGIUM.** A constitutional monarchy of western Europe. Its capital is Brussels.

**AREA AND POPULATION.** Area, 11,373 sq. miles. Population (1900), 6,693,548; estimated 1908, 7,386,444; 1909, 7,451,903. The marriages in 1908 numbered 57,564; in 1907, 58,660; total living births, 183,834 (in 1907, 185,138); still-born, 8563 (in 1907, 8311); deaths, 121,964 (in 1907, 115,347); divorces, 892 (in 1907, 841). The immigrants in 1908 numbered 38,155 against 38,921 in 1907, the emigrants, 32,294 against 32,350. The estimated population of Brussels, (with suburbs), December 31, 1908, was 637,807; Antwerp, 314,135; Liège, 175,870; Ghent, 163,763; Mechlin, 59,218.

**EDUCATION.** Primary education is compulsory, and each commune must maintain at least one primary institution, with state aid. The primary schools numbered, in 1908, 7355, with 914,709 pupils; infant schools, 2985, with 267,994 pupils; state normal schools, 54, with 4755 students; adult schools (state), 4473, with an attendance of 227,220. Number of teachers, 40,660 in 1908-9. Amount expended (1907), 53,029,291 francs.

The secondary normal schools had an enrollment in 1908-9 of 196 (182 in 1907-8); the various establishments (state, communal and provincial) for secondary education had in 1908-9 a total of 35,436 pupils (35,027 in 1907-8). Amount expended (1807), 8,396,282.23 francs.

The university students (1908-9) were distributed as follows: Gand, 443; Liège, 1670; Brussels, 845; Louvain, 1688. The technical and special schools attached to the universities had a total of 2299 students. In 1908, 8.46 per cent. of the military recruits could neither read nor write; in 1890 the percentage was 15.92.

The State paid out of the national treasury in 1909 the following grants to religious bodies: to Roman Catholics, 7,261,300 francs; to Protestants, 104,700; to Jews, 25,600. Roman Catholicism is the State religion, but entire religious liberty prevails.

**AGRICULTURE.** Of the 1,736,174 hectares under cultivation, the areas devoted to the principal crops in 1907, and the production for 1906 and 1907, are given as follows:

	Hectares 1907	Quintals 1906	Quintals 1907
Wheat .....	158,845	3,523,088	4,309,500
Barley (winter) ..	32,578	807,385	1,003,648
Oats .....	248,423	6,564,840	6,667,793
Rye .....	259,723	5,224,696	5,965,333
Potatoes .....	142,749	24,127,000	24,001,884
Beets (sugar) ....	53,322	17,489,228	14,535,180
Beets (other) ....	62,443	34,155,029	32,928,164
Tobacco .....	2,831	68,044	61,529
Hops .....	2,341	34,948	30,780

On December 31, 1907, the livestock numbered 1,817,689 cattle, 249,831 horses, and 1,279,462 swine.

**MINING AND METALS.** There were 130 coal-mines in operation in 1908, employing 145,280 persons; the output, 23,537,900 tons, was valued at 380,579,000 francs (1907: mines, 125; employes, 142,699; output, 23,705,190 tons; value of output, 399,657,000 francs). In 1908, 188,780 tons of iron were mined (value, 992,800 francs), against 316,250 tons, valued at 1,503,000 francs, in 1907; 357 tons pyrites (2300); 2099 blende (150,700); 195 lead (29,450); 7130 manganese (124,650). There were 53 blast furnaces and pig-iron works in operation in 1908, with 3667 workmen and an output of 1,270,050 tons, valued at 85,883,000 francs; 253 iron manufactories, 9830 workmen, 484,390 tons, 41,584,000 francs; 119 steel works, 15,778 workmen, 2,772,030 tons, 304,139,000 francs. The product of the zinc works (7156 workmen) was 161,940 tons, valued at 80,383,000 francs; lead (1630 workmen), 35,650 tons, 12,121,000 francs. Iron ore to the value of 12,532,481 francs was imported from Luxemburg in 1907; in 1908, 8,722,909 francs. The pig and manufactured iron produced in 1907 and the value in 1907 and 1906 are as follows:

	Tons 1907	Francs 1906	Francs 1907
Pig iron.....	1,378,290	97,409,000	104,116,000
Mfgd. iron.....	358,500	53,303,000	57,708,000
Steel ingots.....	1,466,715	133,110,000	150,562,000
Steel rails, etc.....	1,216,690	169,046,000	192,694,000
Zinc .....	152,370	98,616,000	89,830,000
Lead .....	27,455	10,207,000	13,082,000
Silver from lead..	.....	21,081,000	22,604,000

The quarries (1680 in 1908, 1630 in 1907) had in 1908 an output valued at 62,874,600 francs (65,356,710 in 1907) and employed 36,877 workmen (36,909 in 1907).

**OTHER INDUSTRIES.** The glass industry grows annually. In 1906 there were 69 factories, employing 31,100 workmen, with a total output valued at 101,710,000 francs, of which about 75 per cent. was exported. Belgium holds fourth place among the world's flax-manufacturing countries (Ireland, France, Russia); 161,000 tons in 1907, 158,000 in 1908, 174,000 in 1909 having been imported to supply the 320,000 spindles in operation. The lace-makers numbered, in 1907, 45,000; against 150,000 in 1875. There were 97 sugar manufactories at work in 1907, with an output of 227,015 tons of raw sugar; 23 refineries, 107,398 tons; 135 distilleries, 66,763 kilolitres of alcohol at 50° G.-L. The fishing vessels (1907) numbered 537, and the catch was valued at 6,312,752 francs.

**COMMERCE.** The trade for three years is given below in thousands of francs:

	1907	1908	1909
Imports .....	3,773,600	3,327,400	3,704,300
Exports .....	2,848,100	2,506,400	2,809,700
Transit .....	2,343,000	2,021,000	2,290,400

Principal articles of the 1909 special trade are given with their value in thousands of francs:

Imps.	1000 fr.	Exps.	1000 fr.
Cereals, etc.....	643,200	Iron, etc.....	214,600
Wool .....	178,800	Cereals, etc.....	210,300
Skins .....	170,200	Machinery .....	143,700
Timber .....	165,300	Skins .....	140,100
Seeds .....	153,200	Flax, spun.....	97,300
Resins .....	131,200	Flax, raw.....	96,100
Rubber .....	103,000	Seeds .....	95,700
Chem. prods.....	102,800	Diamonds .....	92,800
Diamonds .....	95,200	Woolens .....	90,400
Coal .....	95,000	Zinc .....	90,300
Cotton .....	83,700	Coal .....	82,200
Dyes .....	88,900	Glass .....	78,000
Iron, etc.....	84,900	Chem. prods.....	66,300
Flax .....	83,300	Cottons .....	65,300
Coffee .....	61,600	Sugar .....	43,900

Imports from France were valued at 473,650,000 francs; exports to France, at 451,900,000; Germany, 494,900,000 and 729,700,000; Great Britain, 456,800,000 and 372,500,000; Russia, 326,200,000 and 40,900,000; Argentina, 320,200,000 and 90,200,000; Netherlands, 282,600,000 and 310,900,000; United States, 277,200,000 and 107,100,000; British India, 167,700,000 and 35,200,000; Rumania, 112,600,000 and 9,200,000. Vessels entered, 10,539, of 14,283,345 tons; cleared, 10,519, of 14,274,014.

**COMMUNICATIONS.** The total length of railway lines at the beginning of 1909 was 2898 miles, of which 2670 miles were operated by the state and the remainder by private companies. The following statistics are for the year ending December 31, 1908: Total passengers carried, 176,821,515; receipts (state), 268,352,414 francs (269,168,242 francs with certain indirect profits) and (private companies) 20,445,528; expenditure (state) 182,772,882 francs, and (private) 13,605,154. Length of telegraph lines, 4523 miles; wires, 24,187 miles; number of offices, 1378; telegrams sent, 7,472,746; receipts, 5,619,820 francs; expenditure, 5,004,434. Length of telephone wires, 107,994, entirely state-owned; receipts, 7,602,063 francs; expenditure, 7,255,997 francs. Number of post-offices, 1485; receipts, 35,939,748 francs; expenditure, 18,675,113. Length of roads, 5988 miles; of navigable rivers and canals, 1349. Merchant marine, 88 vessels of 152,325 tons net.

**FINANCE.** The unit of value is the franc, worth 19.3 cents. Revenue and expenditure are given below for four years in thousands of francs (1909, budget voted):

	1906	1907	1908	1909
Rev. ord.....	597,168	617,808	616,986	633,199
" extraord....	3,468	1,466	829	.....
Exp. ord.....	591,522	615,237	613,021	635,719
" extraord....	180,844	152,536	157,430	.....

The budget for 1909 is detailed below:

Rev.	1000 fr.	Expend.	1000 fr.
Direct taxes.....	70,201	Debt .....	185,526
Customs .....	64,778	Civil list.....	5,354
Excise .....	81,328	Justice .....	30,276
Registration, etc.	74,553	For. Affairs ..	4,182
Stamps, etc.....	1,301	Interior, etc....	18,345
Rys., Tels., etc.	319,254	Arts, etc.....	35,209
Domains, etc....	23,998	Col. office.....	996
Repayments, etc.	7,786	Industry .....	23,960
		Rys., etc.....	222,826
Total .....	633,199	War .....	56,890
		Gendarmerie ..	56,890
		Finance .....	9,355
		Pub. Works.....	22,033
		Repayments .....	17,967
			635,719

The debt stood, Jan. 1, 1910, at 3,580,859,751 francs.

**BANKS.** The condition of the National Bank (the only bank of issue) on Dec. 31, 1909, was as follows: Cash on hand, 158,912,458 francs; portfolio, 715,652,835; advances on public funds, 63,303,856; public funds, 49,013,427; notes in circulation, 845,015,550; accounts current, creditors, 112,570,183; reserve, 37,276,767. The state savings banks had, Dec. 31, 1908, 2,624,991 depositors with deposits amounting to 886,240,741 francs (2,528,207, with 843,731,385 francs, in 1907). There are agricultural, joint-stock, private, and popular banks, and credit unions.

**GOVERNMENT.** The executive power lies in the King: Albert, born 1875, son of the late Prince Philippe de Saxe-Coburg and Gotha and of Flanders; married (1900) to Princess Elizabeth of Bavaria; succeeded his uncle, Leopold II, December 17, 1909. Heir-apparent, Prince Leopold, born Nov. 3, 1901. The King is aided by a responsible ministry of ten members. The legislative body is the Parliament, made up of the Senate (110 members), and the Chamber of Representatives (166 members). The ministry in 1910 was made up of the following members: Premier, Minister of the Arts and Sciences, F. Schollaert; Justice, L. de Lantsheere; Foreign Affairs, J. Davignon; Interior, P. Berruyer; Finance, J. Liebaert; Agriculture and Public Works, G. Helleputte; Industry and Labor, A. Hubert; Railways, Posts, and Telegraphs, Ch. de Broqueville; War, Lieut.-Gen. J. Hellebaut; Colonies, J. Renkin.

**ARMY.** The reorganization provided for by the legislation of 1909 was in progress during the year. The new establishment consisted of 42,800 men on a peace footing, and 180,000 on a war footing, while the entire peace effective strength of the army was 3543 officers and 43,988 men, including some 2000 civilian employees. The war effective of the field army was stated at 2713 officers and 98,696 men and 26,068 horses. One son in each family is liable for military duty, and in 1910 there were 28,299 men of age available for enrollment in the annual contingent. Of these 9086 were withdrawn by the militia boards, and of the remainder about 2000 were expected to be able to meet the requirements of the medical boards; consequently, an annual contingent of 17,000 men was expected as compared with the annual volunteer quota of about 13,000, which had been found insufficient to secure an army of proper size. The Belgian army was composed of 8 regiments of cavalry, each consisting of 4 active squadrons and one reserve squadron. There were two regiments of chasseurs, 2 of guides and four of lancers. The field artillery, reorganized in the fall of 1910, consists of 4 brigades, each of two regiments composed of six field batteries; a reserve of 12 field batteries and ammunition columns are maintained, and there are 4 horse batteries. There was one regiment of engineers consisting of 3 battalions and the reserve battalion, and 5 companies of technical troops. The infantry comprises 14 regiments of the line each consisting of 4 battalions, of which 3 are active and 1 reserve; one regiment of grenadiers with an organization similar to that of the line, one regiment of carbiniers of 6 battalions, 4 of which are active and 2 reserve, and 3 regiments of chasseurs-à-pied.

There is also a Civic or National Guard which is organized on a military basis, but in time of peace is under the Ministry of the Interior and

numbers approximately 45,000 actives and 100,000 non-actives. Under the law of 1909 the obligation for military service consists of 15 months for infantry, fortress artillery and engineers, 24 months for cavalry and horse artillery, 21 months for field artillery, 12½ months for service in administrative corps. The total service under the new arrangement including the later training will be 20 months for the infantry, 36 months for horse artillery and cavalry and 28 months for the field artillery and army service, 22 months for the fortress and special artillery companies, 24 months for the administrative service.

It was announced during the year that the war budget for 1911 would amount to 59,935,440 francs, an increase of 3,045,148 francs over the amount allotted in the budget for 1910. The effective strength thus provided for was 3540 officers, 41,028 men and 2053 employees, of which 1800 were in the military service, and 10,171 horses of which 2014 are for officers and 8157 for the troops. In comparison with the report of the effective strength for 1910 this is an increase of 92 officers, 1022 horses. To this effective should be added that of the gendarmerie—76 officers, 3519 men of which 1749 are mounted; 1844 horses of which 95 belong to officers; an increase of 4 officers and 154 men and a decrease of 80 horses over the figures of the previous year.

In Belgium the gendarmerie forms at times of mobilization 4 squadrons. The new budget provided for the creation of new regiments of artillery and increased pay. There were also appropriations of 1,160,500 francs to complete the supply of field artillery for the reserve and of 250,000 francs for ammunition for the field artillery. The Minister of War reported to the Chamber the draft of the law fixing the contingent of recruits for 1911. The contingent for the foot army was fixed in time of peace at a maximum of 100,000 men and the effective mean of the infantry in time of peace was fixed at 42,800 men. In the training of 1909 and 1910 the main peace effective was 40,314 men, exceeding by 1867 men that of the preceding training period, but less by 2500 men in round figures than the mean of 42,800 provided for by law. In 1910, 61,072 were enrolled. Belgium has no navy.

#### HISTORY

**THE MAY ELECTIONS.** The general result of the elections was favorable to the Opposition, but did not come up to their expectations. In spite of the efforts of the Socialists and Liberals, who in most of the election districts had formed an alliance, they gained only one seat from the government. On the other hand, the government, which had expected to regain a number of seats won by the Opposition in the last elections by a small majority, saw that majority increased. In general, throughout the country there was a slight increase of the anti-Clerical vote, although the anti-Clericals and the Catholics were left practically on an equal footing. The government majority was reduced by the election to six votes, which, small as it was, was regarded as sufficient to keep it in power. The division of parties and their general policies may be briefly outlined as follows: The Democratic element in the Parliamentary Right favored some of the measures of the Opposition. It was the union of this Democratic element with the Left that had carried the new military law of 1909, which fixed the peace strength at 42,800 and provided for personal service (one

son in a family). A number of its members favored obligatory instruction and a reform of the electoral laws, which were measures demanded by the Opposition. As to obligatory instruction, the Right were not willing to concede that reform unless the free schools, that is to say the schools established and maintained by the Catholic Church, should receive substantial subsidies. The previous budget had made provision for a considerable grant to these schools and it was understood that this concession would be carried further. However, the Catholics desired a law compelling the communal governments to grant to the free schools an amount equal to that which was spent on the official schools. Such a plan was highly objectionable to the Liberals and the Socialists, while on the other hand obligatory instruction was offensive to the Catholic party. The project of electoral reform had already come before Parliament. It had received the approval of the commission appointed to consider it. The attitude of the government toward it did not seem to be favorable. It aimed at a unification of the electoral laws extending proportional representation as employed in the legislative elections to the elections for the provincial and communal councils, and reducing the age for voting from 30 to 25 years.

**THE MINISTRY.** M. Schollaert continued as Premier. Two changes were made in the ministry. Baron Descamps, Minister of Arts and Sciences, and M. Delbeke, Minister of Public Works, lost their places in the cabinet, but more for personal than political reasons. Baron Descamps, who had been a professor in the University of Louvain, aroused much criticism and even ridicule by his excessive patronage of the artistic and literary classes, which was attributed to his own literary ambitions. He was the author of a drama in verse celebrating the achievements of Leopold II in Africa. Moreover he had not been successful in meeting the attacks of the critics who opposed the government's policy toward the schools. The title of the portfolio had been changed from Public Instruction to Arts and Sciences, and it was understood that the Minister should henceforth devote his attention, not only to the official schools, but to the free schools subsidized by the government. M. Delbeke had been active in carrying out the late King Leopold II's extensive building projects, which had encountered severe criticism. Under the new reign he was no longer needed.

**LEGISLATION.** The Chamber passed the Congo budget on Feb. 17. The law for the reorganization of the Councils of Prudhommes was passed. This gave women the right to vote and introduced proportional representation. It also extended the jurisdiction of the Councils to employees of commercial houses. It was to go in force in March, 1911. Another important law to pass Parliament was that concerning the employment of Flemish in secondary education. It provided that Flemings should not be admitted to the University courses unless they have received an education in Flemish, but in order to conform to the constitutional provision guaranteeing freedom of education, a delay in its execution was necessary, and the new rule was not to apply except to those who had not yet begun their secondary studies. For six years no restriction was to be placed upon the inhabitants of the Flemish provinces

who had not pursued their studies in Flemish.

**THE NIEDERFULLBACH FOUNDATION.** M. Renkin, Minister for the Colonies, was criticised for his alleged association with certain financial irregularities in Congo affairs on the part of the late King Leopold. When the treaty for the annexation of Congo to Belgium was under discussion, he had urged that the state should place at the King's disposal the sum of 50,000,000 francs, to be expended without rendering any account to the Chamber, and he had argued that it would not be proper to demand from the Congo administration a statement as to the 130,000,000 francs which had been already borrowed and which was to become a debt to be borne by the new Colonial administration. To those who insinuated at the time that the money had been improperly expended, M. Renkin replied that he was certain that the loans had been borrowed for the benefit of the Colony. On the death of the King the Niederfullbach affair came to light. The King for a long time had been manoeuvring to carry out in Belgium, independently of the government, such public works as he desired, and to this end had established the Crown Foundation, with extensive territories in Africa, whose revenues were to be applied by officers in his confidence to such purposes as he wished. He sought to have the Crown Foundation recognized in the treaty of annexation, but this was unanimously rejected by the Chamber, which insisted on the suppression of the Foundation. Nevertheless, the new Colony assumed all the obligations that the King had already incurred on this account, and furthermore bestowed on him a special fund of 50,000,000 francs for carrying out some of the projects that he had in mind. The King violated the spirit of this agreement. Although the Crown Foundation was publicly abolished, he established a similar Foundation in the Duchy of Coburg, whence the royal family had sprung, known as the Niederfullbach Foundation. Thus it was found after the death of the King that he had employed the money to endow this new Foundation in a foreign country, whose revenues were to be applied to furthering the King's personal policy in Belgium. When this was revealed, M. Renkin was obliged to admit in Parliament that he had spoken ill-advisedly and without verification when he had told them, on the authority of personal counselors of the King, that the entire debt of the Congo had been fully accounted for. He added, however, that the new Colony would recover the money expended in the Niederfullbach Foundation, and would lose nothing. But this was not done and the money which had been applied to the Coburg project appeared to be beyond recovery. Against the claims of the state, it was urged that the Niederfullbach expenditures were beyond their jurisdiction, that they had not been noted in the accounting which had been made after the treaty of resumption, and if the grants of King Leopold were invalid, his daughters, as his legal heirs, were alone able to present a claim. In December Princess Louise brought suit against the government for the recovery of the property comprised in the Niederfullbach Foundation and also against an officer of the late King for the recovery of money which, it was alleged, he had turned over by the King's order to Baroness Vaughan. Another financial difficulty arose with the Congo concessionaries. The treaty

formally stipulated that all rights conceded to third parties should be maintained, and King Leopold had made free use of the right of concession, giving to certain financiers with whom he was associated the right to exploit the domain. One of these concessionary companies, that of the Kasai, claimed an indemnity of 40,000,000 francs from the Belgian Colony because the Colonial administration had abolished the monopoly that it had acquired over all the state's domain, established commercial liberty and authorized the free exploitation of the forests. The state had a sufficient share in the concessionary companies to control the meetings of the stockholders, but the Kasai Company claimed the right of administering without calling meetings of stockholders.

**THE NEW KING.** The private life of the late King Leopold offered a marked contrast to that of his successor. King Leopold was not less noted for his dissolute private life than for his lack of political scruples. A large part of his fortune was settled upon Baroness Vaughan, who had been a barmaid, and was the daughter of a janitor at Budapest, and who claimed a morganatic marriage. His will divided \$3,000,000 among his three daughters, none of whom could succeed to the throne by the Salic law. His only son had died at the age of nine. King Albert, who was born in 1875, was his nephew. He married on October 2, 1900, Princess Elizabeth of Bavaria, by whom he has had three children. His private life has been without reproach and in political matters he is known to be progressive. He has made a special study of social and economic sciences and has given much thought to current political questions. As to the Congo policy he differed radically from King Leopold, and declared at the time of his accession that the Belgian government must administer Congo affairs humanely. He himself has visited the Congo and considered plans for the improvement of conditions there. In the new budget passed by the Chamber of Deputies, the principle of forced taxation, which had been so severely criticised, was retained. Those interested in Congo reform declared that the abuses would certainly continue if it was permissible for the administration to demand from every village a certain quantity of rubber without regard to their ability to raise it. See CONGO, BELGIAN.

**BELLE FOURCHE PROJECT.** See RECLAMATION.

**BELMONT PARK AVIATION MEET.** See AERONAUTICS.

**BENEFIT SOCIETIES.** See FRATERNAL ORGANIZATIONS.

**BENJAMIN, LEWIS S.** See LITERATURE, ENGLISH AND AMERICAN, section *Biography*.

**BENNETT CUP.** See AERONAUTICS.

**BENNETT, ARNOLD.** See LITERATURE, ENGLISH AND AMERICAN.

**BERGER, GEORGES.** A French critic and essayist on art, died July 8, 1910. He was born in 1834 and was educated at the Lycée Charlemagne. He was the proprietor of profitable vineyards, and was able to devote himself to art. He gave all his leisure to the study of ancient and modern art objects and wrote extensively on art topics for the *Journal des Débats*. He was the author also of an important work entitled *The French School of Painting from Its Origin down to the Reign of Louis XIV* (1879). Among his important services to art was the use of his influence in causing the French Par-

liament to concede the Pavillon de Marsan in the Louvre to the Society of the Central Union of Decorative Arts. In collaboration with Le Play he had charge of the decorative arts section of the Universal Exhibition of 1867 and he was director of the foreign arts section of the exhibition of 1878. He acted as director-general of promotion in the exhibition of 1899. He held the position of professor of æsthetics and of the history of art in the National Fine Arts School of France and was an officer of public instruction and member of the Chamber of Deputies of the Department of the Seine, a member of the Institute of France, of the Higher Council of Fine Arts and of the Council of National Museums.

**BERGERET, DENIS PIERRE.** See NECROLOGY.

**BERIBERI.** The connection between a rice diet and beriberi has long been recognized, but the precise manner in which rice acts as an ætiological factor has been a matter of dispute among sanitarians in the East. Many observers have failed to admit that the cereal was wholly responsible, and others still believe the disease to be caused by a specific organism. Recent observations in the Philippine Islands help to reconcile these views and to prove that the danger lies in the method of preparing the grain. According to available statistics, it would seem that beriberi has increased among the natives since the introduction of rice milling machinery. Not only in the Philippines, but in other parts of the Orient, an increase in the number of cases of this disease has been observed since polished rice has supplanted the hand-milled variety as a staple article of diet. Beriberi is more frequent among natives whose food is polished rice than among those in remote regions where the Filipino still uses the unpolished cereal, although rice continues to be the principal article of diet. De Hann has observed that beriberi could be kept in abeyance by adding to the white rice diet a form of green pea, rich in phosphorus, the "katchung idju." Frazier and Staunton at the Laboratory for Medical Research in Kuala Lumpur of the Malay States found that fowls fed on highly polished rice suffer from an inflammatory disease of the nerves, probably identical with beriberi in human beings. Frazier points out that in a steady diet of polished rice, the peripheral nerves do not obtain sufficient nourishment. The unpolished rice grain contains beneath the skin or pericarp a layer of cells rich in fat and phosphorus, while the central portion of the grain consists of pure starch. In polishing rice, the outer fat-containing layer is removed. Rice prepared in the ordinary native way by hand milling contains a large amount of these oil-bearing layers. It is the experience of the Bureau of Health of the Philippine Islands that a little meat or even the rice polishings mixed with a diet of white rice will lead to improvement in beriberi patients in the early stages of the disease. Polished rice is no longer used as a diet in either the Army, the Navy, or in the public institutions of the Islands.

**BERKELEY, CAL.** See INITIATIVE AND REFERENDUM.

**BERLIN.** See GERMANY.

**BERLIN, UNIVERSITY OF.** See UNIVERSITIES AND COLLEGES.

**BERMUDA.** A British colony, composed of over 300 small islands, 580 miles east of North

Carolina and 677 from New York. Total area, about 19 square miles. About 20 of the islands are inhabited. Total population (1901), 17,535 (6383 whites); 1909, 19,434 (6777 whites). Birth-rate (1907), 36.8; death-rate, 19.9 per thousand; marriages, 185. There were in 1909 49 primary schools (26 receiving government aid of £1611 annually, with 1959 pupils, 18 unaided, 3 garrison, 2 naval), and 6 secondary schools. Chief town, Hamilton, with (1901) 2246 inhabitants. Area cultivated in 1901, 2652 acres. Onions, potatoes, and other vegetables, lily bulbs, and arrowroot are grown. Imports for 1909 were valued at £440,648 (cattle £22,045; food stuffs, £21,511; cotton goods, £20,191; flour, £19,413; butter, £15,474. Exports, £183,884 (potatoes, £37,508; onions, £26,375; vegetables, £13,375; lily bulbs, £6805). There are no telegraphs; there are 214 miles of military, and 1200 miles of private telephone lines. The colony is connected by cable with Halifax, Nova Scotia, Turks Island and Jamaica. There are 19 post-offices, and two local banks. Revenue and expenditure (1909), £68,921 and £67,003 respectively. Public debt, £45,500. The governor of the colony (1910, Lieut.-General Walter Kitchener) is also commander-in-chief of the military forces.

**BERNARD, TRISTAN.** See FRENCH LITERATURE.

**BERNE-BELLECOUR, ÉTIENNE PROSPER.** A French landscape, portrait and military painter, died November 29, 1910. He was born in Boulogne in 1838. He was the pupil of Picot and Barrias, and at first painted landscapes and portraits. His reputation was, however, achieved by the accurate and spirited pictures of episodes of the Franco-Prussian War. His works, many of which are in private collections in the United States, include the following: "Cannon Shot" (1872), "In the Trenches" (1877), and "To Arms!" (1891).

**BERNHARDT, SARAH.** See DRAMA.

**BERNIER, CAPT.** See POLAR RESEARCH.

**BETHMANN-HOLLWEG, THEOBALD VON.** See GERMANY.

**BEVERIDGE, ALBERT J.** See UNITED STATES and INDIANA, paragraphs on *History*; also PUBLIC LANDS.

**BEYLIE, LÉON MARIE EUGÈNE DE.** See NEOBIOLOGY.

**BHUTAN.** A semi-independent state in the eastern Himalayas. Area, about 20,000 square miles; population, mainly Buddhists, about 250,000. Capital, Punakha. The chief products and exports are rice and other grains, wax, musk, ponies, chowries, and silk. The imports from Bengal, Eastern Bengal, and Assam (1908-9) amounted to £38,556 (1907-8, £40,284); exports to those provinces, £20,148 (£22,975). In 1910 a treaty was concluded by which the Indian government assumed control of Bhutan's foreign relations, and agreed to pay the maharajah an annual subsidy of £6667 and to refrain from interference in internal affairs. The former dual control by a secular and a religious head was abolished in 1907, when the temporal chief (*tongsa penlop*), Sir Ugyen Wangchuk, was elected sole ruler. Political officer (1910), C. A. Bell.

**BIBLE SOCIETY, AMERICAN.** A religious organization founded in 1816 for the purpose of encouraging a wider circulation of the Holy Scriptures, without note or comment. The year 1910, the 94th of its existence, was one of the

most notable years in the history of the Society. During the year the campaign to secure \$500,000, upon which was conditioned an equal amount to be given by Mrs. Russell Sage, was satisfactorily completed. There came also during the year the announcement of the legacy of Mr. John S. Kennedy of \$750,000 for the general work of the Society. Most important for its influence on the distribution of Bibles in the United States was the action of the Pennsylvania Bible Society, the oldest society of its kind in America, in entering into coöperation with the American Bible Society to create a great home agency covering the States of Pennsylvania, Delaware and New Jersey. With the exception of Maryland and the New England States the entire country is now covered by the direct and systematic efforts of the National Society. The year was also memorable for the large increase in the issues of the Society. The total issues of the Bible House in New York during the year ending March 31, 1910, was 984,325 volumes in the English language. This total is made up of 213,740 Bibles, 291,163 Testaments and Testaments and Psalms, 478,443 Portions and 979 volumes in the various raised characters for the blind. In addition to these issues in the English language, the Scriptures were issued in 70 languages other than English. Of these the largest number were in the Spanish language, 141,285. In Italian, 73,853 volumes were issued; in Portuguese, 41,064; in German, 33,837; and in Polish, 32,296. There were printed and purchased abroad for foreign distribution 1,399,584 volumes, including Bibles, Testaments and Portions, and there were sent abroad for distribution 203,013 volumes, making the total number for foreign circulation 1,602,597, and the total number published by the American Bible Society for distribution throughout the world, 2,826,831 volumes. The total issues of the Society in 94 years amount to 87,296,182. China showed a great advance in the number of volumes issued during the year. The total number issued for that country was 1,028,496 volumes, an increase of 532,477 volumes over the previous year. The total receipts of the Society during the year 1909-10 amounted to \$533,470. This does not include the trust funds, of which only the income can be used. The amount received in legacies during the year was \$187,739 and there were received from church collections \$24,433. The work among the different agencies in the United States prospered during the year. These include the Agency among the Colored People of the South, the Northwestern Agency, the South Atlantic Agency, the Western Agency, the Southwestern Agency, the Pacific Agency, the Eastern or Central Agency, and the Atlantic Agency. Among the colored people 27,976 Bibles were distributed during the year. Among the foreign agencies notable work was done in China, where the circulation is referred to above, and in Korea, where 70,187 volumes were distributed. In the Philippines 72,543 volumes were distributed, and in Japan, 61,045. Important work was also carried on in Porto Rico, Mexico and Central America. During the year the Society lost by death three of its vice-presidents, Major-General Oliver O. Howard, Professor James H. Carlisle and Justice David J. Brewer. Bishop Daniel A. Goodsell, who died during the year, was also a member of the Society and deeply concerned in its work. On May

6, 1909, the Board of Managers elected Theophilus Anthony Brouwer as its thirteenth president. He was elected to succeed Daniel Coit Gilman, who died in 1908. The Secretaries of the Society are Rev. John Fox, D. D., Rev. William I. Haven, D. D., and Rev. Henry Otis Wright, LL. D., and the Treasurer is William Foulke.

**BICYCLING.** See CYCLING.

**BIERBAUM, OTTO JULIUS.** A German author, died 1910. He was born at Grünberg, Lower Silesia in 1865. He successfully took up the studies of philosophy, Romanic philology, history of art, and Oriental languages. In the course of his studies he visited the universities of Zurich, Leipzig, Munich and Berlin. He became in 1892 the editor of the *Freie Bühne* of Berlin, later published as the *Neue Deutsche Rundschau*. He abandoned the publication of this journal to found the art journal *Pan*, which he conducted in 1895 in collaboration with Julius Meyer-Graefe. His publications include: *Erlebte Gedichte* (1892); *Studentenbeichten* (1897); *Die Freiersfahrten und Freiersmeinungen des veierfeindlichen Herrn Pankrazius Graunzer* (1897); *Der bunte Vogel von 1897 und 1899*; *Ein Kalenderbuch* (1896 and 1898); *Irrgarten der Liebe* (1901), a collection of poems; *Stella und Antonie*, a drama (1903); *Eine empfindsame Reise im Automobil* (1903); *Das Cénacle der Maulesel* and *Die Schlangendame*, plays (1905).

**BIGELOW, JOHN.** See LITERATURE, ENGLISH AND AMERICAN, section *History*.

**BILHARZIA.** See TROPICAL DISEASES.

**BILLIARDS AND POOL.** The billiard history of 1910 is noteworthy for the growth in popularity of the three-cushion game. Alfredo de Oro of New York City began the year as title-holder, but met defeat at the hands of Fred Eames of Denver in January. Two months later Thomas Hueston wrested the prize from Eames and in May de Oro defeated Hueston. The overthrow of de Oro followed in December when he lost to John Daly. Calvin Demarest, who was the 18.2 balkline champion at the beginning of the year, was beaten by Harry Cline in February. The latter in turn went down to defeat before Willie Hoppe, who had made his peace with the controlling powers of the game, after having been for several months on the outs with them. Then Hoppe won the 18.1 title from George Sutton. The veteran, George Slosson, next challenged Hoppe, only to receive one of the worst beatings of his career. This left the young billiard wonder supreme in the field. Hoppe made several new records during the year, but the majority of them were not officially recognized. In the three-cushion game George Moore made a run of 15. The old mark, 14, was made by Frank Peterson, an amateur, twenty-five years ago. The amateur championship was won by E. W. Gardner, who did not lose a game. J. F. Poggenburg carried off the special prize for the highest single average and Joseph Mayer captured the high run trophy. Jacob Schaefer, "The Wizard," one of the finest exponents of the game, died during the year.

The championship in continuous pool changed hands three times in 1910. Thomas Hueston, who started the year as title-holder, was defeated in January by Jerome R. Keogh, who retained the championship by successive victories over Charles Weston, Clarence Safford, and Ben-

jamin F. Allen, until in November he lost it to Alfredo de Oro.

**BINET-VALMER.** See FRENCH LITERATURE.

**BIOCHEMISTRY.** See BOTANY.

**BIOGRAPHY.** See FRENCH, LITERATURE; GERMAN LITERATURE; and LITERATURE, ENGLISH AND AMERICAN.

**BIOLOGICAL STATIONS.** On the Atlantic coast of North America, the laboratory of Tuft's College, at South Harpswell, Me., the Marine Biological Laboratory at Woods Hole, Mass., the laboratory of the Brooklyn Institute at Cold Spring Harbor, the Harvard laboratory at Bermuda, the United States Fisheries laboratories at Woods Hole and Beaufort, N. C., and the Marine laboratory of the Carnegie Institution at the Dry Tortugas, were conducted as in previous years. (See YEAR BOOK for 1909.) In addition to these the Johns Hopkins University established a summer laboratory at Montego Bay, Jamaica, thus reviving a project which had been dormant since 1897. According to the report of the Director, Professor Andrews, the locality seems to have been exceptionally favorable, both as to climatic conditions, and as to the available forms of life. The laboratory was primarily conducted for the benefit of the graduated students of the University. The United States Fisheries Bureau laboratory at Fairport, Iowa, completed its organization, and with Dr. R. E. Coker as Director began propagation work on mussels. The universities of Michigan and of Colorado conducted as usual, summer laboratories, while on the Pacific coast marine laboratories were maintained by the University of Washington, University of California, University of Lower California, and the Leland Stanford University. All of these were for both instruction and research. The Port Erin Biological Station reported extended work on oceanography and fish hatching. Extensive additions are to be made to the buildings of this station, to accommodate the increasing number of students and investigators. For an exhaustive study of the European Biological stations by Professor C. A. Kofoid, see Bulletin No. 4, 1910, U. S. Bureau of Education.

**BIOLOGY.** As indicated in the YEAR BOOK for 1909, there is, at the present day, not only a very great lack of agreement as to the value of the results reached by different workers along lines of investigation in Heredity and Evolution, but an unfortunate disagreement as to the best methods to be employed in the solution of these problems. What follows is a summary of the most important work of 1910 along these lines, but no attempt has been made at harmonizing the apparently discrepant results.

General topics, as Heredity, Evolution, etc., are treated in this article; for general morphology of animals, see article ZOOLOGY; for plants, see BOTANY. Special articles dealing with insects, fishes and birds will be found under the headings ENTOMOLOGY, FISH AND FISHERIES, and ORNITHOLOGY respectively.

**BIOMETRICS.** The application of mathematical methods to the study of biological data (biometrics) has apparently not accomplished the results that were hoped for it, so that Bateson, in his *Mendel's Principles of Heredity* (see YEAR BOOK for 1909), said: "That such work may ultimately contribute to the development of statistical theory cannot be denied, but as applied to the problems of heredity the effort has

resulted only in the concealment of that order which it was ostensibly undertaken to reveal. To those who hereafter may study this episode in the history of biological science it will appear inexplicable that work so unsound in construction should have been respectfully received by the scientific world." To this, Pearson, the leading English biometrician, replies in *Biometrika*, 1910, that "Biology has now developed theories of such complexity that without the aid of the highest mathematical analysis it is wholly unable to state whether its theories are accurate or not. This many Mendelians admit to-day and all will admit it in the near future." It is however, true that so far as it is possible to form a judgment concerning the permanent value of the work of a contemporary, the investigators whose work now seems of greatest value do not agree with Pearson in either his methods of work or the conclusions derived from them. Pearson also combats the conclusions reached by Jennings, Johanssen and others in the study of the so-called "pure lines of descent" (see YEAB BOOK for 1909). He thinks, for example, that a proper mathematical treatment of Jennings results on inheritance in *Paramecium* would show that he really did secure a modification when breeding in pure lines. Pearson also discussed data given by Hanel on the selection of *Hydra* according to the number of tentacles, and claimed that the data showed that here selection in a pure line had actually led to a permanent increase in the number of tentacles. Pearl and Surface, however, reached conclusions more in agreement with those of other workers in their study of the egg laying power of hens, for they found that the progeny of especially prolific hens, laying 200 and more eggs a year, were no more prolific than those of hens with a much lower record. This is in substantial agreement with the results reached as a matter of experience by practical breeders, who for years have stated that in estimating the value of an individual for breeding purposes, it is necessary to consider not only its individual capacities but whether or not it is able to transmit them to its descendants.

**GENETICS.** Interest is increasing in the general subject of Genetics, and a new journal, the *Journal of Genetics*, under the editorship of Bateson and Punnett, was announced in 1910. Interest centres mainly around the applications and extensions of the law of Mendel, though much interest was being shown in the subject of eugenics, which has an immediate and practical application to some problems of human society. A special Eugenics Committee of the American Breeders' Association was appointed in 1909, and a report by its Secretary, Dr. Davenport, appeared in 1910. While but little could be reported as actually accomplished up to that date, the report shows that enormous actual saving to the community could be brought about by investigations in eugenics, and practical application of the results of these investigations.

**GALTONISM AND MENDELISM.** In dealing with Mendel's Law, Davenport maintains the paradoxical conclusion that a character may really be dominant and still not appear (reversal of dominance). This he thinks may be due to the fact that the really dominant character may be weakened or it may appear late in the ontogeny, so as not to be in evidence in early stages. According to the pioneer work of Galton on heredity, the character of the offspring is inter-

mediate between those of the parents (blended inheritance); while in cases which are typically Mendelian, the offspring, with respect to any one pair of opposed characters, each possessed by one parent, will inherit either one or the other, and not a blend of the two. Thus a distinction is made between variations which are continuous, leading to a blended inheritance, and those which are discontinuous, leading to a Mendelian form of inheritance. Many students of heredity have believed that this distinction is unreal, and that, properly analyzed, the continuous variations would be seen really to belong in the other group, thus making all inheritance of the Mendelian type. Castle says that size variations are apparently continuous and their inheritance blending, while color variations are discontinuous and their inheritance Mendelian. Castle does not attempt to reconcile these differences, but suggests that they can be reconciled by supposing that there may be a number of allelomorphic pairs, not alike in ultimate constitution, but when active capable of producing the same results: for example, as in the case of East's own work on inheritance in maize, a red seed color. Here red, not necessarily always of the same shade, may be produced by any one of a number of allelomorphic pairs, in each of which the color is dominant to its own absence. The intensity of the color would depend on the number of these characters present, and we might therefore get apparent continuity when we really have variable numbers of individually discontinuous characters.

**CHROMOSOMES.** Wilson, Stevens, and others, continued their study of chromosomes, and Guyer found in human spermatogenesis evidence bearing on Wilson's contention that the determination of sex is in some way connected with the accessory chromosomes. He finds in the spermatogonia twenty-two chromosomes, of which two are evidently accessory, since half of the spermatids contain ten, and half twelve chromosomes. Arguing from analogy, he thought that in the human male, the body cells have twenty-two, and in the female, twenty-four chromosomes. Newmann and Patterson found thirty-one and thirty-two chromosomes respectively in the male and female armadillo. Montgomery, on the other hand, after reviewing the evidence for regarding the chromosomes as determiners of sex, concludes that it assumes too definitely limited a function for the chromosomes. Sexuality, like other bodily characters, is, he thinks, a result of the total bodily compositions, not under the control of one or a few chromosomes.

**UNIT CHARACTERS.** There was manifested during the year an increasing amount of scepticism concerning the accuracy of that part of deVries's theory of inheritance dealing with unit characters, these seeming to many workers too fixed and unchangeable, allowing as they do of change only through mosaic arrangement and rearrangement, to accord with the observed facts of heredity. Tower asked if the unit characters or lesser entities occupy in the organism the mosaic relation and have the capacity for the mosaic rearrangement claimed by most Mendelians, and from a study of the results of his own extended researches on *Leptinotarsa* concludes that they do not. Crossings between species of this genus show that external conditions as temperature and moisture determine whether one character shall be dominant or recessive, or

whether the offspring may be a hybrid. From this he concludes that we must not regard the hereditary characteristics of the living body as due to paired determinants more or less isolated from other determinants in the body, but to the organic substance of which the body is composed, taken as a whole, the whole being affected and more or less modified by external factors. Spillman showed that we might have true Mendelian phenomena without assuming unit characters, on the hypothesis that the character of a cell may be of one or another sort, according to the relative amount of chemical changes going on in it. Thus color may be due to the action of an enzyme on a chromogen. If the relative amounts of the two substances vary, we get color variations. We may get, for example, red or white, not because of a red unit opposed to, or replacing a white, but because the enzyme action on the chromogen may give either red or white dependent on the relative amounts of the two substances present.

**COLOR VARIATIONS.** Mr. and Mrs. Davenport continued their study of heredity in a paper on the heredity of Skin Color in Man, using data obtained from a study of crossings between the negro and white races. Their general conclusion was that skin pigmentation in crosses between the two races is not a typical blend, but that the original grades of dark and light coloration segregate in the germ cells. Johnson, in a publication of the Carnegie Institution on the "Evolution in Color Pattern of Lady Beetles," concluded that color variations are both continuous and discontinuous; that the pattern is capable of being modified by the environment; some of these modifications being inherited, others not; that Jordan's law in evolution (New species arise only through isolation) is not followed, since species overlap to a great extent, and that natural selection, if active at all, is principally *conservative* of the color pattern. He thought that there was a form of determinate variation largely actuated by the effect of the environment on the germ plasma which was accomplishing a marked evolution of the color pattern.

That evolution has progressed in definite lines without the selection of chance variations is claimed by Morgan, who thinks that this is due to the fact that organisms respond to environmental conditions, and that each response in a definite direction tends so to modify the protoplasm that it may respond more readily to later stimulus in the same direction. Clark, in Ophiuroids, showed that closely related species occur in the same locality, thus in contradiction to Jordan's law. He thought that some form of physiological selection was responsible for the change of species in this case.

**TRANSMISSION OF ARTIFICIAL MODIFICATIONS.** Sumner tested the question whether artificially produced modifications in an animal tend to reappear in the offspring, by a series of observations on mice. A number of individuals kept in a warm room were found to differ from those kept in the cold in a number of characters, the "warm room" mice having on the whole longer tails, feet and ears than the "cold room." Mice living under these conditions were removed as soon as they became pregnant to a common room, so that their offspring were born and reared under precisely similar temperature conditions. The offspring showed, with some exceptions, though to a less degree, the same dif-

ferences as those which characterized their parents. Since in a warm-blooded animal the germ plasma could not be affected by the temperature of the atmosphere outside the body, it looked as if there might have been a direct inheritance of bodily modifications. This conclusion is suggested in a very tentative way by Sumner, who recognized that other interpretations are possible, and proposed to continue his results further.

**PARASITIC CASTRATION.** Wheeler studied the effects of parasitic castration in *Polistes metricus* parasitized by *Xenos*. This condition is a frequent one, 1000 specimens of *Polistes* from western Connecticut showing more than 25 per cent. of infection. The only visible effect of the parasite on the host was a slight color change, secondary sex characters not being affected, thus a very different result from what happens in crustacea and vertebrates. Wheeler concludes from a general survey of the effects of various forms of castration in insects that "primary and secondary sex characters are very loosely correlated during ontogenetic development, or in a very different manner from what they are in vertebrates or even in crustacea. . . . The insect egg not only has its primary sexual characters determined long before fertilization, and independently of the later nuclear or chromosomal phenomena, but even the secondary sexual characters are in some manner also predetermined at this early stage." See ZOOLOGY.

**BIOMETRICS.** See BIOLOGY.

**BIONOMICS.** See BIOLOGY.

**BIPLANES.** See AERONAUTICS.

**BIRD PROTECTION.** See ORNITHOLOGY.

**BIRTH-RATE.** See articles on countries.

**BISHOP, HENRY F.** See NECROLOGY.

**BISLAND, ELIZABETH.** See LITERATURE, ENGLISH AND AMERICAN, section *Biography*.

**BISMARCK ARCHIPELAGO.** A German protectorate under the administration of German New Guinea. Estimated area (with German Solomon Islands), 22,000 square miles; estimated population, 250,000. In 1906 estimated native population, 188,000; Chinese, 299. Whites in 1909, 474. There are Wesleyan and Catholic missions. A total of 13,464 hectares is reported under cultivation, the chief products being copra, cotton, coffee, and rubber. Imports (1908), 2,385,144 marks; exports, 1,426,212 (copra, 1,343,544); 555 vessels of 412,474 tons net entered and cleared. See ANTHROPOLOGY AND ETHNOLOGY.

**BISMUTH.** See ATOMIC WEIGHTS.

**BITUMINOUS COAL.** See COAL.

**BITYTE.** See MINERALOGY.

**BJÖRNSON, BJÖRNSTJERNE.** A Norwegian poet, dramatist and novelist, died April 26, 1910. He was born at Kvikne in 1832, the son of a Lutheran pastor. His childhood was passed in Kvikne, Romsdal, and Molde, in noble scenery, rich in legendary associations. He studied at the University of Christiania, but left before graduation to work as a journalist, having already written sketches and reviews of plays. In 1857 he published his first drama, *Between the Battles*, and in the following year his first novel, *Synnöre Solbakken*, translated into English as *Trust and Trial*. He was made director of the theatre in Bergen and from 1860 to 1863 traveled on a government stipend, chiefly in Italy. After the latter year he resided, for the most part, in Norway, with frequent visits to Paris,



**BJÖRNSTJERNE BJÖRNSON**

1701

Rome and Munich. He lectured in the United States in the winter of 1880-81. His chief fame was as a novelist and dramatist, but he wrote ballads and lyrical compositions of great beauty. His dramas covered questions of politics and religion, domestic relations and social conditions. His great work was completed many years before his death and, therefore, for a long period he has been known and thought of as one of the great men of the Scandinavian lands. In early life he was an intimate friend of Ibsen, but they drifted so far apart as to be almost enemies. Fifteen years previous to Björnson's death, however, there was a reconciliation and his eldest daughter married Ibsen's son. He was a great champion of his race, of the Norwegian genius and of the restoration of the native tongue in its integrity. He organized public lectures in furtherance of Norwegian art. In his early years he accepted the theological views of elementary Christianity, but after a tour of study in foreign countries and after he had acquainted himself with the thought of Darwin, Spencer, Mill, Taine and others, through their works, his writings took a Darwinian and psychological tinge and he entered politics as a social reformer. He became prominent in the election campaigns and was eloquent in addressing the people. In 1870 he advocated the union of Norway with France. Later he led the National Radical party and at one time wished Norway to become an independent republic. In all his works, whether rural novels, heroic drama, plays or songs, the elements of grandeur, beauty and charm are present. Many of his plays deal with social problems. In *A Glove* he spoke for equality of standards in the morals of the sexes, while in *The Editor* he satirized the press and in *The King* attacked the institution of monarchy. He exposed the lack of honor in the financial world in *The Banker*. In 1903 he received the Nobel prize for literature. He was the chief novelist, probably the chief poet, and, with Ibsen, the chief dramatist of his country's history. His shorter poems were published in *Poems and Ballads* (1870), and in the same year appeared his only epic poem, *Arnljot Gelline*. From that time he wrote little verse. His early novels include *Arne* (1858); *A Happy Boy* (1860), and *The Fisher Maiden* (1868). These deal with rural life and are primitive pastorals, genuine yet modern. The dramas of the earlier years are based on the native sagas, with the exception of *Mary Stuart in Scotland* (1864) and *The Newly Wedded Pair* (1866). The drama of his second period began with *The Editor* (1874) and included *A Bankruptcy* (1875); *The King* (1877); *Leonardo* (1879); *The New System* (1879); *A Glove* (1883); *Beyond our Strength* (1883); *Geography and Lore* (1885); *Paul Lange and Tora Parsberg* (1898); *Laboremus* (1901); *At Storhove* (1903); and *Dagelannet* (1904). His novels show the same evolution from *The Bridal March* (1873) through *Magnhild* (1877), *Captain Mansana* (1879), and *Dust* (1882), to the true problem novels *The Heritage of the Kurts* (1884) and *In God's Way* (1889), the former dealing with redemption from heredity through education and the latter with bigotry and liberal thought. This brought on Björnson severe criticism from the orthodox, although his avowed aim was to exalt and purify religion. Many of his novels were translated into English.

**BLACK FLIES.** See ENTOMOLOGY.

**BLACKFOOT INDIANS.** See ANTHROPOLOGY AND ETHNOLOGY.

**BLACKWELL, ELIZABETH.** The first woman to receive a medical degree in the United States, died June 1, 1910. She was born in Bristol, Eng., in 1821, daughter of Samuel Blackwell, who emigrated to America with his family in 1832. He was a sugar refiner and established a refinery which, in 1838, was burned. He moved to Cincinnati, hoping to introduce there the cultivation of beet sugar and so strike a blow at slavery by making the Southern cane sugar plantations unprofitable. His plans were interrupted by death and he left his family dependent upon their own exertions. Elizabeth Blackwell, with the help of her mother and two sisters, opened a school and began at once to take an active part in the anti-slavery and higher education of women movements. Miss Blackwell took charge of a district school in Henderson, Ky., where she was brought into direct contact with slavery. Her views on the subject made her position impossible and she resigned after teaching one term. She became impressed with the need for women physicians and at once began an attempt to secure a medical education. She found it impossible to obtain admission into a medical school and in 1845 began the study of medicine privately under Rev. John Dickson who kept a school in Asheville, N. C., where she was engaged as a teacher; and after studying anatomy under Dr. Allen in Philadelphia, she applied for admission to the four medical colleges of that city, all of which refused to admit her. The medical schools of New York City also refused to open their doors to a woman, but after repeated applications she was admitted to the medical school at Geneva, N. Y., where she graduated at the head of her class in 1849. She studied later with her sister Emily in Paris and London, and in the latter city formed friendships with Lady Byron and Florence Nightingale. In 1851 she returned to New York City and began to practice. It was then considered highly improper for a woman to be a doctor and she was ostracized, even having difficulty in renting office room. Her patients came slowly, and not being allowed to practice in the dispensaries, she started one of her own, with her sister Emily, who had received her degree in medicine from the Western Reserve University in 1854. This institution was called the New York Infirmary for Women and Children, and was the first hospital in this country to be conducted by women. Most of the patients were drawn from the very poor, but in time the institution became a flourishing one. At the outbreak of the Civil War Dr. Blackwell called a meeting to consider means to provide trained nurses for the army, and from this meeting grew the National Sanitary Aid Association. Mindful of her struggle to obtain a medical education, and there being still no medical college for women in the United States, she founded the Woman's Medical College of the New York Infirmary, which was afterwards merged with the Cornell Medical College when that institution opened its doors to women. In 1869 Dr. Blackwell returned to England and practiced in London and Hastings. She founded the National Health Society of London and assisted in founding the London School of Medicine for Women. In addition to lecturing on medical and educational topics she wrote many

books and pamphlets, among them *Moral Education of the Young*, *The Human Element in Sex*, *The Influence of Women in Medicine*, *Pioneer Work in Opening the Medical Profession to Women* and *The Physical Education of Girls*. She was the sister of Henry B. Blackwell, the famous abolitionist.

**BLACKWELL, EMILY.** An American physician, died September 8, 1910. She was born in Bristol, Eng., in 1826. She began a course of medical reading and dissection at Cincinnati College when she was twenty-two years of age. She was already proficient in Latin, German and French. She taught school and earned money enough to enable her to study medicine. In 1851 she was refused admission at the Geneva Medical School at which her sister Elizabeth (see above) had been allowed to study. She was refused at ten other schools. She finally succeeded in obtaining admission to the free hospital of Bellevue, N. Y., and after an interval was received by the Western Reserve University, where she finished her course. She studied at Edinburgh and attended the clinics and lectures of the greatest surgeons in Paris. She was associated with her sister in the foundation of hospitals and dispensaries, and the chief professional events of their lives were shared together.

**BLAKE, WILLIAM PHIPPS.** American geologist and mineralogist, died May 22, 1910. He was born in New York City in 1826, and graduated from the Yale Scientific School in 1852, a member of the first class of the newly instituted department which later became the Sheffield Scientific School. After his graduation he became, in 1853, the geologist and mineralogist of the United States Pacific Railroad expedition, and in 1859-60 was editor of a mining magazine. In 1862 he went to Japan as a geologist in the service of the Japanese government and returned in the following year and explored the Stickeen River in Alaska, reporting the result of his expedition to Secretary Seward. In 1864 he was appointed professor of mineralogy and geology in the College of California. He received the appointment in 1871 as geologist of the United States Commission to Santo Domingo and in 1876 was commissioner to the Centennial Exhibition. From 1894 to 1905 he was director of the School of Mines of the University of Arizona and from 1905 to the time of his death was professor emeritus. From 1898 he served as territorial geologist. He was a member of many American and foreign scientific societies. He was the author of *Geological Reconnaissance of California* (1885), *Silver Ores and Silver Mines*, *Tombstone and its Mines*, *Ceramic Art and Glass*, and *Life of Captain Jonathan M.* He also contributed many papers and reports on technical subjects to scientific journals.

**BLAND, J. O. P.** See LITERATURE, ENGLISH AND AMERICAN, section *Poetry and Drama*.

**BLAST FURNACE.** See COKE and GAS.

**BLAVET, ÉMILE RAYNER.** See NECROLOGY.

**BLANNERHASSETT, LADY.** See LITERATURE, ENGLISH AND AMERICAN, section *Biography*.

**BLIND, SCHOOLS FOR THE.** See EDUCATION IN THE UNITED STATES.

**BLOCK SIGNALING.** See RAILWAYS.

**BLODGETT, RUFUS.** An American public official, formerly United States Senator from New Jersey, died October 3, 1910. He was born in Dorchester, N. H., in 1834, and received a

common school education. He learned the trade of machinist and engaged in railway business in New Jersey. From 1874 to 1884 he was superintendent of the New Jersey Southern Railroad and from 1884 was superintendent of the New York and Long Branch road. He was a member of the New Jersey legislature from 1878 to 1880 and was a delegate to the Democratic National conventions in 1880 and 1896. In 1887 he was elected United States Senator, serving until 1893. He was mayor of the city of Long Branch for five consecutive terms.

**BLOOD FLUKE.** See TROPICAL DISEASES.

**BLUEBERRIES, DOMESTICATION OF.** See HORTICULTURE.

**BLUE GUM FIBRE.** See CHEMISTRY.

**BLUE HILL OBSERVATION.** See METEOROLOGY.

**BLUNT, RICHARD FREDERICK LEFEVRE.** A bishop of the Anglican Church, died January 23, 1910. He was born in Chelsea, Eng., in 1833, and was educated at the Merchant Taylors' School. He studied law but finally entered King's College, London, with a view to taking holy orders. He graduated in 1857 and became deacon the same year. He was ordained priest in 1858. In 1864 he was appointed to the benefice of Scarborough, which he held until 1905. He was appointed suffragan bishop of Hull in 1891.

**BLÜTHNER, JULIUS.** See NECROLOGY.

**BOGOTÁ, RIOTS IN.** See COLOMBIA.

**BOIS, JULES.** See FRENCH LITERATURE.

**BOKHARA.** A Russian vassal state in central Asia. Area, 83,000 square miles; population, about 1,250,000. Capital, Bokhara, with about 75,000 inhabitants; Karshi has 25,000; Khuzar, 10,000. The people are Mohammedans. Corn, fruit, silk, tobacco, hemp, and livestock (goats, sheep, horses, camels) are raised. Chief minerals, gold, salt, alum and sulphur. Imports from India: green tea (reported to average 1125 tons annually), indigo, textiles and drugs. Exports of raw silk to India are reported to average 34 tons yearly. Imports of spirituous liquors are forbidden by the ameer, except for use at the Russian embassy. The Russian Trans-Caspian Railway runs through Bokhara (about 186 miles). The city of Bokhara has telegraphic communication with Tashkent. The ameer, Sayid Abdul Ahad (born March 26, 1859; succeeded, 1885), died at the beginning of 1911; and was succeeded by his son, Sayid Mir Alim Khan (born 1880). The Russian political agent resides at Bokhara.

**BOILERS, REINFORCED CONCRETE SETTINGS.** In the construction of boiler settings, reinforced concrete as used instead of brick has proved not only a satisfactory substitute, but in many cases is found superior to it, provided, of course, the design is modified and the concrete made in the proportions to give best results under the conditions imposed for this kind of work. The setting should be built with double walls, 5 or 6 inches thick, with a 6-inch air space between. The concrete must be made in the proportion of cement 1, sand 2, and stone 4. It is important that a hard stone be used, trap-rock giving the best results for this purpose, as it makes the hardest, densest and highest heat-resisting concrete when used in the proportion above specified. No soft rock or limestone should ever be used, for, even though not directly exposed to the fire (fire-brick always being needed), any but the hardest rock will in time disintegrate from

prolonged exposure to the heat transmitted by even the thickest brick.

The trap-rock should be crushed to the size of  $\frac{1}{2}$  or  $\frac{3}{4}$  inch, not larger, and the sand must be sharp and clean. In a few cases, where trap-rock was not obtainable without prohibitive expense, cinders have been used, but are not so desirable as the stone.

As to reinforcement, round 7-16 inch steel set 6 inches apart horizontally as well as vertically gives good satisfaction. Frequently 3-8 inch steel is employed, in which case the rods must be placed 5 inches on centres, care being taken to keep the ends of these at least  $1\frac{1}{4}$  inch away from the fire side of the inside wall. Furthermore, the firebrick lining must be heavy, a  $9\frac{1}{2}$  inch lining being none too thick, and in the end more economical than the  $4\frac{1}{2}$  inch size often used with brick settings. The inner and outer walls must be bound together at intervals by carrying the reinforcement clear through from one to the other. In some constructions the space between the walls is divided by bulkheads or partitions to secure added strength.

**BOLIVIA.** An interior republic of South America. Sucre, the seat of the Supreme Court, is usually regarded as the capital; but the president resides at La Paz, and for a number of years the Congress has held its sessions there and the foreign diplomats are stationed in that city.

**AREA, POPULATION, ETC.** The country consists of eight departments and of two territorial divisions. The latter have been little explored. The total area is unknown, and estimates differ widely; one estimate is 473,560 square miles, another about 605,000, still another about 708,000. Consequently the number of inhabitants is not known with even approximate accuracy, but estimates of population vary less than those of area, since it is certain that vast territorial regions are very sparsely peopled. The census of 1900 showed 1,744,568 inhabitants, and the estimate of 1908, 2,267,935. About one-half the population is Indian, and probably not more than one-eighth pure white. The estimated population of La Paz in 1909 was 78,856; Cochabamba, Sucre, and Potosí have about 25,000 each; Santa Cruz and Oruro, upwards of 20,000. Primary instruction is free and nominally compulsory. In 1906 primary schools numbered 710, with 48,560 pupils. Some provisions are made for secondary and higher education. The state religion is Roman Catholicism.

**PRODUCTION AND COMMERCE.** Agriculture shows unsatisfactory development, although about 5,000,000 acres are said to be under cultivation. The crops include corn, rice, barley and potatoes; other products are cacao, cinchona, and coffee, but the vegetable product commercially most important is rubber. The country, however, depends mainly upon its mineral resources, which are abundant and widely distributed, tin, silver and copper being the leading ores. The annual gold production amounts to about \$349,000.

Imports and exports are reported as follows, in thousands of bolivianos:

	1906	1907	1908	1909
Imports .....	31,997	34,562	33,069	34,069
Exports .....	50,757	45,902	58,924	63,764

The principal imports are cotton and woolen textiles, provisions, machinery and hardware, and alcoholic beverages. The exports are largely products of the mine, and the most important is tin. Chief exports (1909): Tin, 38,659 metric tons, valued at 31,654,109 bolivianos; rubber, 3052 tons, 21,947,138 bolivianos; silver (in sulphids and minerals), 5,721,915 bolivianos; copper, 1,641,201; bismuth, 1,451,075. The most noteworthy change in the import trade of 1909 was the decrease of German and the increase of American imports. In 1908 and 1909 respectively imports from the United States were valued at 8,164,129 and 10,873,604 bolivianos; Great Britain, 6,588,459 and 7,894,344; Germany, 10,207,532 and 5,320,999. In American gold the value of imports from the United States in 1909 was about \$4,349,000, American statistics, however, show exports to Bolivia amounting to only \$895,838. The discrepancy is explained by the American custom of crediting a large part of the exports for Bolivia to the ports of entry in neighboring countries.

The tin industry shows a notable development in the last decade. The export is chiefly barilla, containing about 60 per cent. of metallic tin; only a small part of the output is bar tin. The export of barilla in 1900 was 16,234 metric tons; 1905, 27,689 tons; 1906, 29,373 tons; 1907, 27,677 tons; 1908, 29,938 tons; 1909, 35,566 tons.

**COMMUNICATIONS.** The length of Bolivian railways is reported at 804 kilometres (500 miles). There is rail communication from Guaqui, on Lake Titicaca, to La Paz, to Oruro, thence to the southwestern frontier, and thence in Chile to the port of Antofagasta. Branch lines are under construction from Oruro to Cochabamba, from Oyuni to Tupiza, and from Mulato to Potosí. A line also is under construction from the Chilean port Arica to La Paz. According to a recent official statement about 860 miles of railway are projected at a cost of over \$12,000,000.

The length of telegraph lines is reported at about 3100 miles (2390 owned by the government), with 124 offices. There are somewhat over 200 postoffices.

**FINANCE.** Complete and final figures of revenue and expenditure are not available. Estimated revenue and expenditure: 1908, 15,925,375 and 16,717,500 bolivianos respectively; 1909, 16,209,026 and 20,363,662; 1910, 13,540,000 and 13,887,435. The greater part of the revenue is derived from import and export duties. In 1907 the recognized internal debt amounted to 4,346,529 bolivianos, besides treasury bonds amounting to 2,500,000 bolivianos. The (J. P.) Morgan loan of \$500,000 (6,250,000 bolivianos), contracted in December, 1908, was applied for immediate service of the internal debt and to help in the establishment of the gold standard. The aggregate debt, on Jan. 1, 1910, is reported at 7,760,325 bolivianos. The monetary unit, the boliviano, is worth 38.93 cents (12.5 to the pound sterling).

**ARMY.** While compulsory military service is required of males between the ages of 20 and 50 the army is virtually a militia and consists of a brigade of infantry composed of 6 battalions of 4 companies with 300 men, two regiments of cavalry aggregating 600, 1 battery of field artillery with 4 guns, 1 regiment of mountain artillery with Creusot guns. The peace effective

of the army in 1910 was stated at 257 officers and about 3000 men. This number can be increased considerably by the various Columns or local troops in the chief towns of the various departments. Each of these amounts to between 40 and 100 men and in case of war they would be the skeletons for new battalions. There are also three batteries of artillery of old pattern that would be utilized by reserve forces. The army reserves and the territorial guard were estimated to produce a possible fighting strength of about 90,000 men upon mobilization. Progress was being made with the reorganization of the army which was designed to have an extra cavalry and an extra artillery regiment in addition to those mentioned.

**GOVERNMENT.** The executive authority is vested in a president, who is elected for a term of four years and is assisted by a ministry divided into six departments. The legislative power devolves upon a congress of two houses, the Senate (16 members) and the Chamber of Deputies (72). The President in 1910 was Eliodoro Villazón (for the term of 1909-13). See **ARBITRATION, INTERNATIONAL.**

**BOLLES, HEZEKIAH EUGENE.** See **NECROLOGY.**

**BOLL WEEVIL.** See **COTTON.**

**BOMBARDA, DR. MIGUEL.** See **PORTUGAL.**

**BONCI, ALESSANDRO.** See **MUSIC.**

**BONE, DAVID.** See **LITERATURE, ENGLISH AND AMERICAN.**

**BOOTS AND SHOES.** Dr. H. W. Wiley, the chief chemist of the United States Department of Agriculture laid before Congress during the year evidence of the fraudulent "loading" of leather by the use of glucose and other materials which adds to the weight of the leather, but as it is soluble, causes the shoes to deteriorate rapidly when worn in the wet or snow. This fraud, according to Dr. Wiley, is practiced extensively with the cheaper grades of shoes and this question of the adulteration of sole leather became so prominent during the year that the following resolution was passed by the National Boot and Shoe Manufacturing Association.

"Relating to the subject of the adulteration of leather this Association desires to again enter its earnest protest against the continued adulteration of leather and the report of progress made by your committee warrants us in declaring the custom to be unnecessary, harmful and inherently wrong. Therefore be it

Resolved, That our committee be authorized to continue its investigation, confer with the representatives of the tanners, and to report to all members simple methods of detecting the presence of adulterating materials and in general to do all in its power to protect shoe manufacturers from the annoyance and loss resulting therefrom.

The year 1910 was a record year in the boot and shoe industry so far as exports were concerned. Both in quantity and value previous years were exceeded and the foreign trade, especially in Central and South America, was beginning to attain substantial dimensions.

Exports of Boots and Shoes:

	Pairs.	Value.
1910	7,810,903	\$13,216,237
1909	6,773,934	11,443,225
1908	5,967,793	10,031,227
1907	6,326,527	11,658,323

Cuba is the largest customer for American shoes, taking in 1910 2,848,304 pairs. Other countries to which shoes were exported, with the quantities, were Mexico 789,627 pairs. Canada 796,977, Central American States and British Honduras 525,781, West Indies and Bermuda 646,705, United Kingdom 752,176, and South America 335,164.

**BORCHARD, ADOLPHE.** See **MUSIC.**

**BORDEAUX DOCKS.** See **DOCKS AND HARBORS.**

**BORDON, Sir FREDERICK W.** See **CANADA, Government and History.**

**BORDIER, ARTHUR.** See **NECROLOGY.**

**BORJA, CESAR.** See **NECROLOGY.**

**BÖRJESON, JOHAN HELENUS LAURENTIUS.** A Swedish sculptor, died in February, 1910. He was born in Holland in 1835, and studied in Rome and Paris. In 1886 he was appointed professor in the Academy at Stockholm. His works include genre and ideal subjects, and portrait-statues of various sizes. The following are among the best known of his creations: "The Bowler" (Gothenburg Museum); "Youth with a Tortoise" (National Museum, Stockholm), and the colossal statues of Holberg at Bergen, and of King Charles X. at Malmö.

**BORNEO.** An East Indian island belonging partly to Great Britain, partly to the Netherlands. Estimated area, 293,500 square miles; estimated population, 1,680,000. See **BRITISH NORTH BORNEO; BRUNEI; SARAWAK; DUTCH EAST INDIES.**

**BORON.** See **ATOMIC WEIGHTS; FERTILIZERS.**

**BOSNIA AND HERZEGOVINA.** Since September 5, 1908, provinces of the Austro-Hungarian Empire (formerly Turkish provinces). Area 19,702 sq. miles. Population (1895), 1,568,092 (1908 estimate, 1,828,379); Mohammedans, 548,032; Oriental Orthodox, 673,246; Roman Catholic, 334,142. The population is mainly Croato-Servian. Capital and largest town, Sarajevo, with 38,083 (1908, 41,500) inhabitants; Mostar had 14,370 and Banjaluka, 13,566. Education (free but not compulsory) is furnished in 398 elementary, 940 lower and 93 reformed Mohammedan schools, 5 *gymnasias*, 2 *realschule*, 11 advanced female seminaries, and 9 commercial schools. Theological and normal (3) colleges and technical and industrial schools exist.

About 88 per cent. of the people are engaged in agriculture which, despite the fertile soil, is not in a high state of development. The staple grains are raised, as well as tobacco (a government monopoly), potatoes, flax, hemp, and fruit. Of the total area 55 per cent. is forest. Cattle and sheep raising is carried on. At the last census there were 233,322 horses, 1,416,394 cattle, 3,230,720 sheep, 1,447,049 goats, and 662,242 swine. Minerals abound, and mining is carried on mainly by the government; miners employed 3172. Output of coal (1908), 659,962 tons; iron ore 149,887; manganese, 6900. Output of metals: raw iron, 51,652 tons (valued at 3,038,400 kroners); wrought iron, 27,185 (5,222,219 kroners); cast iron goods, 4613 (995,838 kroners). Output of Dolina Tuzla salt works, 19,382 tons (2,190,155 kronen). Bosnia and Herzegovina belong to the Austro-Hungarian customs territory. Imports in 1908 (estimated), consisting mainly of cotton textiles, cereals, flour, clothing, etc., 121,686,385 kronen; exports, 108,951,274 (tobacco, 1,155,861 kronen; dried plums and marmalade, 7,250,949; timber,

30,811,533). The number of cattle exported was 69,213; horses, 13,423; sheep, 122,054; goats, 58,039. Length of railway lines (1909), 984 miles; telegraph lines and wires, 1910 and 3820 miles respectively; telephone lines and wires, 183 and 718; post offices, 137. Revenue and expenditure for 1908, 66,487,959 and 66,482,018 kronen respectively; estimated for 1909, 71,320,483 and 71,299,013. The new constitution was proclaimed February 20, 1910. The two provinces are administered through the Austro-Hungarian Minister of Finance (in 1910, Baron Stephan Burján a Rajecz).

**BOSTON.** See CONGESTION OF POPULATION, and MASSACHUSETTS.

**BOSTON, SCHOOLS IN.** See EDUCATION IN THE UNITED STATES.

**BOSTON SYMPHONY ORCHESTRA.** See MUSIC.

**BOTANY.** CHANGES AND PROGRESS IN 1910. Judged by its literature, the year 1910 was an active one in the several fields of botany. One of the important events of the year was the holding of the Third International Congress at Brussels, May 14 to 22, which was attended by about 150 delegates from all parts of the world. As the previous congress at Vienna had legislated on the subject of the nomenclature of the higher plants, that at Brussels considered the initial dates for the nomenclature of cellular cryptogams. The botanical section of the British Society for the Advancement of Science met at Sheffield, England, August 31 to September 7, 1910, with Prof. J. W. H. Trail as vice-president. At this meeting joint sessions were held with the sections of chemistry and physiology to consider the biochemistry of respiration, and with the section of zoology to discuss the problems of cytology. The botanical section of the American Association for the Advancement of Science met at Minneapolis, Minn., December 27 to 31, 1910, with Dr. R. A. Harper, of the University of Wisconsin, as vice-president. The Botanical Society of America and the American Phytopathological Society met at the same time and place. The American Society of Naturalists and the Society of American Bacteriologists met at Ithaca, N. Y., at the same time.

A number of prominent botanists died during 1910, among them Dr. C. R. Barnes, professor of plant physiology of Chicago University; Dr. M. Trueb, for many years director of the botanical garden at Buitenzorg, Java, and noted for his work on the rôle of hydrocyanic acid in plants; Dr. C. B. Plowright, the English mycologist; Prof. C. F. Wheeler, for 10 years assistant botanist of Michigan Agricultural College and later with the U. S. Department of Agriculture; Émile Bréal, known for his early work on the function of the root tubercles of leguminous plants; F. Renault, the French bryologist; Prof. D. P. Penhallow, the paleobotanist and professor of botany at McGill University, Montreal, and Prof. J. B. Carruthers, well known for his investigations on the diseases of cacao, rubber, and other tropical plants. A number of important changes were made during the year. Dr. W. J. Beal, for 40 years botanist of Michigan Agricultural College, retired and was succeeded by Dr. E. A. Bessey; Dr. W. J. V. Osterhout succeeded Dr. G. L. Goodale, who retired after 30 years as professor of botany at Harvard; Dr. L. R. Jones, of the University of Vermont, went to the University of Wisconsin and was succeeded by Dr. G. P. Burns, of Ann

Arbor, Michigan; Prof. W. G. Gallagher, botanist and director of agriculture of the Federated Malay States, retired and was succeeded by Dr. Lewton Brain, formerly mycologist of the British West Indies and later of the Hawaiian Sugar Planters' Experiment Station. Dr. B. E. Livingston has been appointed professor of plant physiology at Johns Hopkins University; Dr. J. E. Kirkwood, professor of botany and forestry at the University of Montana; and Dr. C. Stuart Gager, director of the newly established botanic garden in Brooklyn, N. Y. During the summer a monument was erected to the memory of Gregor Mendel at Brunn, where he carried on his experiments in plant breeding that led to the formulation of the now famous Mendel's laws of inheritance.

The *Botanical Journal* made its appearance as the official organ of the Royal Botanic Society of London. Three new periodicals of interest to plant breeders were started. The *Mendel Journal* and the *Journal of Genetics* in London and the *American Breeders' Magazine* of Washington, D. C.

Taxonomic botany was enriched during the year by a great number of papers descriptive of new species of plants, distribution of species, monographic studies of genera, etc. Uphof in *Die Pflanzengattungen* tabulates the number of species of flowering plants and ferns, and the data now in hand places the total number of species of plants at about 233,000. In the special fields of ecology, morphology, and cytology a number of important contributions appeared, while the activity in plant breeding, physiology, and pathology equaled that of any like period.

**PLANT BREEDING.** The sixth meeting of the American Breeders' Association was held at Omaha, Neb., December 5-7, 1909, at which time the progress in plant and animal breeding was reviewed. In order to have a proper basis for plant breeding it is often desirable to know the original species from which economic plants have been derived, and Aaronsohn reports finding in Palestine a wild species of *Triticum* from which our wheat is believed to have originated. A number of European botanists have studied the wild and cultivated species of *Solanum* to find if possible the original of the common potato. There have been a number of contributions to the physiology and cytology of heredity. Balls found from a cytological study of cotton hybrids that there are a large number of allelomorphic pairs of characters that conform to Mendel's law. Leclerc du Sablon claims the *Oenothera lamarckiana* is a hybrid, and that the mutations of de Vries are the result of the hybridization of the plant, the seedlings segregating according to the Mendelian theory. East has studied the possibilities of producing new varieties of potatoes by asexual reproduction and finds nothing in his results to commend the practice to commercial purposes. Shull has continued his studies on color inheritance in *Lychnis*, and Cook has called attention to the mutative variations in cotton, especially in the Egyptian races where ancestral characters suddenly appear in new or unfavorable environments. Cannon reports studies on heredity in species and hybrids of walnuts, poppies, evening primroses, and potatoes, and Waugh and Shaw on variation in sweet peas. Love has shown that the characters of height, yield, and number of internodes in peas vary with food supply.

Emerson finds the characters of size and shape in maize, squashes, gourds, and beans blend in the  $F_1$  generation and segregate in the  $F_2$ . Leclerc and Leavitt found wheat exhibited the same characters when constantly grown in a given locality, but marked differences appeared with a change in environment. Mann found the same with barley. A considerable number of studies on correlation characters in plant breeding were reported within the year; among them Waldron reported on correlations in oats and Clark in timothy. See also HORTICULTURE.

**PLANT PHYSIOLOGY.** The constitution and function of chlorophyll continue to attract the attention of investigators. Stahl, Willstätter, and others have continued their studies on the chemistry and biology of chlorophyll. Issatchenko found chlorophyll formation could take place at as low a temperature as  $-8^{\circ}\text{C}$ . Brdlik claims that phosphorus is necessary for the physiological activity of chlorophyll. As contributing to carbohydrate synthesis, Berthelot and Gaudechon have proved the synthesis of formaldehyde from carbon dioxide and water, under the action of ultraviolet rays. Lubimenko has found light essential for the beginning of the development of fruits, after which growth can proceed in the dark, but with a lowered dry weight. Combes reports that strong light induces an accumulation of elaborated materials in storage organs, while diffused light tends to the utilization of nutritive materials and promotes vegetative growth. Thatcher claims that shading plants increases their moisture, ash, and nitrogen content and diminishes the starch and other carbohydrates. The ascent of sap has had much study, and a number of papers showing that it is due to vital functions have appeared. The formation, translocation, and storage of nitrogenous materials in plants have been investigated by a number of physiologists, and Flammario finds nitrogen in plants increases most rapidly under those colors that stimulate chlorophyll functions the least. André claims that the source of nitrogen in the metabolism of plants must be found in some other form than the nitrates of the soil. Trueb has reviewed his earlier work and found nothing to change his view that hydrocyanic acid is the first organic nitrogenous compound formed by plants. Greshoff and others report cyanogenetic glucosids abundant in plants of nearly every botanical family. Bottomley found by an association of *Pseudomonas* and *Azotobacter* leguminous plants absorb greater quantities of nitrogen than when either acts alone, and De Rossi claims that the true cause of nitrogen assimilation is not *Pseudomonas radicola* of Beijerinck but an organism hitherto overlooked. In nitrogen fixation by bacteria Koch claims that some form of cellulose in the soil is necessary for the energy of fixation. A large number of studies on the effect of chemical and physical agencies on plant activities were reported. Potassium has been found essential to the production of carbohydrates, magnesium to their transportation and storage, and lime to the formation of salts or organic acids. The protective and antagonistic action of lime, sodium, potassium, and magnesium have been reported upon by Osterhout, Lipman, Hansteen, and others. Aberson studied root excretions and found their acidity was due to phosphoric acid when any acid reaction was noted. Etiolated sweet peas have been found sensitive to 1 part of

ethylene gas in 10,000,000 of air, thus becoming a delicate test for that gas in greenhouses. Becquerel reports the germination of spores of *Mucor* and other molds after drying, sealing in vacuum tubes for 12 months, subjection to temperature of  $-180^{\circ}\text{C}$ . for 3 weeks and  $-253^{\circ}$  for 77 hours, and standing for 13 months longer before being placed to germinate. Reed has studied the toxicology of *Diplodia zeae* from moldy corn and isolated a product similar to pellagrozein, which Lombroso claimed was the cause of the disease pellagra. Buchanan reports *Monascus purpureus* on moldy corn as the probable cause of the death of a number of horses. Ultraviolet rays have been found to destroy plant tissues and to have remarkable germicidal properties. This action may be made use of in the sterilization of water supplies of considerable size, the action being very rapid.

**PLANT PATHOLOGY.** The life history of a number of additional species of rusts has been worked out by Arthur, Kern, Fischer, and others. The claim has been made of the discovery of sexuality in rusts, and Lutman is conducting similar investigations with the smuts. Johnson has shown that rust epidemics are associated with subnormal temperatures and heavy dews at critical periods of growth of grains. Tubeuf claims that the alternation of generations in some fungi originate from the inability of certain spore forms to penetrate the thick cuticle of leaves, while other forms, notably the teleutospores, find ready entrance. Averna-Sacca claims that the partial immunity of American grapes to mildew and other diseases is due to the greater acidity of their sap as compared with European varieties. Studies made in India indicate that the fungus causing the wilt of cotton in America, while present, is not parasitic. Bolley claims that some of the deterioration in yield of wheat in the Northwest is due to the presence of fungi in the soils and not to soil impoverishment. The chestnut disease (*Diaporthe parasitica*) has spread and is now known to occur at intervals from Massachusetts to West Virginia. In southern Europe the chestnut trees are suffering from a severe canker, more than 25,000 acres of chestnut trees having been destroyed in France alone. The exact cause of the trouble is not known. European and American varieties of chestnuts are all subject to the disease, while the Japanese are immune. The oak mildew that became epidemic in southern Europe a few years ago threatens the reproduction of oaks; scarcely a seedling escaped attack in 1910. Hedgcock has described a crown gall of grapes in New Mexico that is due to *Bacterium tumefacium* following frost injuries and sun scald. What is probably the same disease was recently reported from Peru. Masses has described some crown gall diseases in England, which so far as observed in that country are due to *Dendrophagus globosus*, as described by Toumey. Barre has found the mycelium of the fungus causing cotton anthracnose to be carried by the seeds, and his experiments indicate that by a comparatively short rotation and the use of clean seed the disease may be held in check. Edgerton has made a study of sugar cane diseases and reports the presence of a number of fungi hitherto unrecorded in the United States. Orton reports the dry rot of potatoes due to *Fusarium oxysporum* is becoming one of the most widespread and destructive diseases of that crop.

The bacterial disease of potatoes known in Europe as blackleg is said by Morse to be present in a number of localities in the United States. The leaf-roll disease continues to be troublesome in Germany, and thus far its cause has not been definitely determined. A serious disease or a number of quite similar diseases of bananas threaten the commercial growing of the crop in Central America and parts of South America. Different investigators have attributed the cause of the disease to bacteria, fungi, nematodes, etc., but all agree on the seriousness of the attack. It is said that at the present rate of spreading there will be scarcely a healthy banana plant in Costa Rica within ten years. A large number of diseases of tropical plants have been reported and special investigations have been made of those on cacao and various rubber-producing plants. The bacterial blight of pears has become a serious menace on the Pacific Coast, and O'Gara and others have described cultural methods for its control. Headden insists that arsenic for spraying for insect pest results in a form of canker on apple trees, but Ball, Grossenbacher, and others claim that the injury can not be due to that cause. A large number of new diseases of economic plants have been described within the year. For the control of the fungus diseases studies are being made of various fungicides. A considerable number of proprietary compounds have appeared, but none seems to have any merit not possessed by properly made Bordeaux mixture. Lime-sulphur mixtures have been found to have marked fungicidal action, and they may be used where injury commonly follows the use of Bordeaux mixture. The toxicity of Bordeaux mixture is said to increase upon standing, hence it should always be freshly made.

**LITERATURE.** Among the new books of botany are: J. M. Coulter, *A New Manual of the Botany of the Rocky Mountains*, revised by Aven Nelson; E. L. Greene, *Landmarks of Botanical History*; A. S. Hitchcock and Agnes Chase, *North American Species of Panicum*; J. M. Coulter and C. J. Chamberlain, new edition of *The Morphology of Gymnosperms*; J. M. Coulter, C. R. Barnes, and H. C. Cowles, *A Text-book of Botany*; Wm. Ganong, *The Teaching Botanist*; Knuth, two parts of the *North American Flora*; *Handbook of Flower Pollination*, translated by J. R. A. Davis; Hugo de Vries, an English edition of *The Mutation Theory*; F. Löhnis, *Handbuch der landwirtschaftlichen Bakteriologie*; D. McAlpine, *The Smuts of Australia*; L. Savastano, *Patologia arborea applicata*; C. Massee, *Diseases of Cultivated Plants and Trees*; H. Faes, *Les Maladies des Plantes cultivées et leur Traitement*; F. L. Stevens and J. G. Hall, *Diseases of Economic Plants*.

**BOTHA**, General LOUIS. See SOUTH AFRICAN UNION.

**BÖTTCHER**, O. See NECROLOGY.

**BOUSFIELD**, Sir WILLIAM. See NECROLOGY.

**BOURGET**, P. See FRENCH LITERATURE.

**BOUTROS PASHA**. See EGYPT, section History.

**BOVINE TUBERCULOSIS**. See VETERINARY SCIENCE.

**BOWDOIN COLLEGE**. An institution of higher learning at Brunswick, Me., founded in 1794. In the year 1910-11 there were enrolled 403 students, while the faculty numbered 64.

This was the largest attendance in the history of the college. The productive funds amounted to \$2,017,733 and the income to \$141,543. The library contains about 100,000 volumes. The President is Rev. William Dewitt Hyde.

**BOWERS**, LLOYD WHEATON. An American lawyer and public official, Solicitor-General of the United States, died September 9, 1910. He was born in Springfield, Mass., in 1859. He graduated from Yale College in 1879 and afterwards studied law at Columbia University, graduating in 1882. In the same year he was admitted to the bar and began to practice in New York City. After remaining there for two years he removed to Minnesota and became a partner of former Chief Justice Wilson at Winona in that State. In 1893 he removed to Chicago, where he became general counsel for the Chicago and Northwestern Railroad. Mr. Bowers was a personal friend of President Taft, and soon after the latter's inauguration in March, 1909, he was appointed Solicitor-General. During the year and five months in which he held the office, he prepared for trial 37 cases, of which 33 were successfully prosecuted. Among the cases on which he was engaged are the Standard Oil and Tobacco cases. Mr. Bowers was often spoken of as a possible member of the Supreme Court of the United States. He was one of the most eminent lawyers in the country.

**BOWLING ASSOCIATION, INTERNATIONAL**. See BOWLING.

**BOWLING**. The tenth annual tournament of the American Bowling Congress was held at Detroit from February 26 to March 16. The individual championship was won by Thomas Haley of Detroit. His nearest competitor was William Richter of Chicago. The two-men team contest was won by Deiker and Waterman of Cincinnati, who rolled 1231. In the five-men team event the Cosmos aggregation of Chicago carried off the laurels with a score of 2880. The world's record for this event is 2962 pins, this score having been made the preceding year by the Lipmans of Chicago. The all-events (nine games) championship went to Thomas Haley, the winner of the individuals. The third annual tournament of the National Bowling Association was held at Baltimore, Md., in April. The winners and scores were: Individual, Tony Prio, Brooklyn, 705; two-men team, Burdein-Eckstein, Washington, 1305; five-men team, the Chalmers of Detroit, 2917. The Corinthians who won this event in 1909 finished second.

**BOWNE**, BORDEN PARKER. An American Methodist Episcopal clergyman, scholar and educator, died April 1, 1910. He was born in Leonardsville, N. J., in 1847 and graduated from the University of the City of New York in 1871. He studied at the universities of Halle, Paris, and Göttingen from 1873 to 1875. In 1875-6 he was assistant professor of modern languages in the University of the City of New York, and in the same year was a member of the staff of the *New York Independent*. In 1876 he became professor of philosophy and dean of the Graduate School of Arts and Sciences in Boston University. He remained in that position until his death. In 1874 he published his first book, *Philosophy of Herbert Spencer*, and this met with such success that he determined to devote his life to the study of philosophy. Professor Bowne was one of the most liberal scholars of

the Methodist denomination, and several times charges of heresy were preferred against him. These charges were, however, not sustained. His reputation as a scholar was high. Among his published writings are: *Philosophy of Herbert Spencer* (1874); *Studies in Theism* (1879); *Metaphysics* (1882); *Introduction to Psychological Theory* (1887); *Philosophy of Theism* (1888); *The Principles of Ethics* (1892); *Theory of Thought and Knowledge*; *The Christian Revelation* (1898); *The Christian Life* (1899); *The Atonement* (1900); *The Immanence of God* (1905); *Personalism* (1907). He also contributed many philosophical and theological articles to reviews and newspapers.

**BOWSER, EDWARD ALBERT.** An American mathematician and engineer, died February 22, 1910. He was born in Sackville, N. B., in 1845 and graduated from Rutgers College in 1868. In 1870 he was appointed professor of mathematics at that institution and was made director of the United States Geodetic Survey of New Jersey in 1875. He continued to hold this position until the time of his death. His published works include *Analytic Geometry* (1880); *Differential Integral Calculus* (1880); *Analytic Mechanics* (1884); *College Algebra* (1888); *Treatise on Trigonometry* (1892); and *Logarithmic Tables* (1895).

**BOXING.** The principal event of the year in pugilistic circles was the Jack Johnson-James Jeffries battle which was fought at Reno, Nevada, on July 4. Johnson won in the 15th round after a strictly one-sided contest. The mill established new records in purse and gate receipts. The purse, \$101,000, was the largest ever contested for. The fight was witnessed by 18,000 persons. (See CALIFORNIA.) Another bout which attracted considerable interest was that between Battling Nelson and Ad Wolgast for the lightweight title. Nelson lost after a stubborn struggle lasting 40 rounds. The defeat of Jeffries and Nelson marked the passing of all except one of the old guard of fighters of the decade. Abe Attell, the featherweight, alone retained his laurels. Stanley Ketchel the middleweight champion was shot and killed in the West, leaving the title open to several claimants, of whom Papke has made the best showing. According to the experts the professional champions in the various classes are: Heavyweight, Johnson; middleweight, open; lightweight, Ad Wolgast; welterweight, "Dixie Kid"; featherweight, Abe Attell and bantamweight, Jimmy Walsh. The Amateur Athletic Union held its annual boxing championships at Boston on April 12. The results of the final bouts were: 105 pound class, James Rothwell of Boston, defeated Charles O'Leary of New York; 115-pound class, John Gallant of Boston defeated H. McEwen of Toronto; 125-pound class, Frank Smith of New York defeated O. Christie of Toronto; 135-pound class, William Volk of Quincy, Mass., defeated William Hopkins of New York; 145-pound class, Hillard Lang of Toronto defeated Thomas Conklin of New York; 158-pound class, William Beckman of New York, defeated William Kenny of New York; heavy-weight class, W. W. Barbour of New York, defeated Joseph Burke of Boston.

**BOYCOTT.** The famous case of Loewe v. Lawlor, known as the Danbury Hatters case, was advanced another stage in February. This case had begun in 1902 when a strike in Loewe's factory had been called for the purpose of main-

taining the closed shop. The contest spread and finally developed into a nation-wide contest. Mr. Loewe was supported by the American Anti-Boycott Association while the Hatters' Union and its friends instituted a secondary boycott with the aid of the American Federation of Labor. In 1908 the Supreme Court of the United States declared a boycott illegal under the anti-trust law, and authorized the complainant to bring suit for damages. This suit was brought before a jury in the United States Circuit Court in Connecticut in October, 1909; in February the jury found that Mr. Loewe had suffered loss to the amount of \$74,000 as a result of the boycott. Under the anti-trust law the actual recoverable damages, therefore, became three times this amount or \$222,000, which some 200 trade unionists were ordered to pay. This fine was not levied upon the Union as such, but upon the individual members. Their property was attached and then released under bond waiting appeal to a higher court on exceptions. On the basis of this decision, suit was brought by one of the New York shirt-waist manufacturers for \$150,000 damages against the International Ladies' Garment Makers of America, the local union, their officers, and certain women who had assisted the striking shirt-waist makers in the winter of 1909-1910. A similar suit was begun by the International Paper Company against its union employes who engaged in a strike during the summer.

The case growing out of the boycott of Buck's Stove and Range Co. by the American Federation of Labor and allied organizations, which was pending in the Supreme Court of the United States at the close of the year, was expected to lead to a definite statement of the legal position of both the primary and the secondary boycott. The briefs in this case were filed early in October. The case against the legal recognition of the boycott was taken up by the American Anti-Boycott Association. It was stated that the case would be pushed to conclusion in spite of the agreement between the Buck's Company and the Federation providing for the union shop. The labor organizations were behind a bill before Congress the purpose of which was to prevent the prosecution of trade unions for maintaining boycotts. It provided that money appropriated for the enforcement of the anti-trust laws should not be spent in prosecuting laborers or labor organizations combining for trade union purposes. An attempt by them to secure the favor of President Taft for the bill called out a statement by him that it was class legislation and that neither he nor they should favor it. See INJUNCTION; and LABOR, AMERICAN FEDERATION OF.

In November, 1909, suit was begun by the Electric Planing Mill of Chickasha, Oklahoma, against the local Trades Council and various trade unions to secure an injunction in restraint of a boycott. A temporary injunction against acts of violence or intimidation was issued; the question thereafter arose whether the fining of a union teamster or a carpenter for failure strictly to observe the boycott should be construed as coercion or intimidation. The court held that it should not be so construed; for while every individual has the right to dispose of his labor powers as he sees fit, yet, if two or more persons contract to submit them-

selves to fines if they individually fail to carry out the agreement to dispose of their labor only under special conditions, such fining is not then coercion. The court held that there is no more coercion in such a case than when a fine is imposed on a club member for violating a by-law. The court, therefore, discontinued the temporary injunction on the ground that, under the existing law of Oklahoma, no violence, coercion or intimidation having been committed, the boycott was legal.

**BOY SCOUTS OF AMERICA.** An organization which has for its purpose character building for boys between the ages of 12 and 18. It is an effort to get boys to appreciate the things about them, and to train them in self-reliance, manhood and good citizenship. The movement was started in England by General Sir Robert Baden-Powell, who was impressed with the fact that 45 per cent. of the boys of England were growing up without any knowledge of useful occupations. The idea became immensely popular and in two years and a half 400,000 boy scouts had been enrolled and 20,000 of these were in parade at one time at London.

The scout idea sprang up spontaneously all over America. Two similar organizations, founded by Dan Beard and Ernest Thompson Seton were combined under the general title, "Boy Scouts of America." The aim of the boy scouts is to supplement the various existing educational agencies and to promote the ability of boys to do things for themselves and for others. The method is summed up in the term "scout-craft" and is a combination of observation, deduction and handiness. It includes first aid, life saving, tracking, signaling, cycling, nature study, seamanship and other instruction. Each body of scouts, which is known as a patrol, selects a leader from among its own numbers. Several patrols are combined in a troop and from these is appointed a scout master who is the leader of the troop. Before he becomes a scout a boy must take the scout's oath, which is as follows: "On my honor I promise that I will do my best, first, to do my duty to God and my country; second, to help other people at all times; third, to obey the scout law." The scouts are divided into three classes, tenderfoot, second-class scout and first-class scout. Before passing from the tenderfoot class to the second or first class, the boy must pass certain tests. The test for first-class scout includes the ability to swim fifty yards; 50 cents at least in the savings bank; signaling; the ability to go on foot or to row a boat alone to a point seven miles away and return; the ability to describe or show the proper means of saving life in case of accidents of various kinds; the ability to cook satisfactorily a prescribed variety of dishes; the ability to read a map correctly and draw an intelligent rough sketch map; the ability to use an axe for felling or trimming light timber; the ability to judge distance, size, numbers and height without 25 per cent. error.

The rules of conduct of the scouts are prescribed by the scout law. This prescribes honor, loyalty, unselfishness, friendliness, a hatred of snobbishness, courtesy, kindness to animals, obedience to parents, cheerfulness and thrift. The Boy Scouts is not a militant body, although its organization is along military lines. A prescribed uniform is worn and medals are

given for faithful service. President Taft is the honorary president of the organization in the United States and Theodore Roosevelt is the honorary vice-president. The chief scout is Ernest Thompson Seton, the chairman of the executive committee is Dan Beard and the Secretary is Lee F. Hanmer.

**BRADDON CLAUSE.** See AUSTRALIA.

**BRADLEY, LUTHER P.** An officer of the United States army, died March 13, 1910. He was born in Connecticut in 1822, and entered the volunteer service as lieutenant-colonel of the 51st Illinois Infantry in 1861. He was promoted to be colonel in 1862 and in 1864 was appointed brigadier-general of volunteers. He resigned in 1865 and was appointed lieutenant-colonel of the 27th infantry in the regular army. He became, in 1879, colonel of the 3d infantry. He was retired by the operation of law on December 3, 1886, having reached the age of 64 years, and was advanced to the rank of brigadier-general on the retired list in 1904. He was brevetted colonel in 1867 for gallant and meritorious services in the battle of Chickamauga, and brigadier-general from the same date for gallant and meritorious services in the battle of Resaca, Georgia.

**BRADY, JOHN.** An American Roman Catholic bishop, died January 6, 1910. He was born in County Cavan in 1842 and studied at All Hallows College, Ireland. He was ordained priest in 1864. He came to the United States and served as assistant pastor in Newburyport, Mass., from 1864 to 1868. In the latter year he became pastor of St. Joseph's church in Amesbury, Mass. He was appointed auxiliary bishop to assist Archbishop Williams of Boston in 1891. He was consecrated titular bishop of Alabama but continued his parochial work in Boston.

**BRAGA, THEOPHILO.** A Portuguese poet, scholar, and public official, president of the provisional republic, which in October, 1910, overthrew the monarchy in Portugal (see PORTUGAL). He was born on the island of São Miguel in the Azores in 1843, where his father was a teacher. His early educational training was at the school, where his father was professor. He worked in a printing shop in his early youth and there supplemented his educational training by such reading as was available. At the age of sixteen he published a small collection of sentimental verses called *Folhas Verdes* ("Green Leaves"). On account of domestic unhappiness he was about to go to America, when he was persuaded by his father to go instead to Coimbra to enter a course in law. This he did in 1861. He found time, in the midst of his legal studies and his labors, to earn a sustenance, to continue the writing of poetry, and in 1864 he published a long epic poem, *Vision of the Ages*. The success of this poem was immediate, especially among the young, progressive Portuguese. In 1868 he was admitted to the doctorate of the law. For three years following he wrote verse and published a collection of early Portuguese popular songs, endeavoring in the meantime to obtain an educational appointment. In 1872 he won, by competition, the chair of modern languages in the *Curso Superior de Lettras* in Lisbon. Almost immediately he began the writing of the *History of Portuguese Literature*, of which 32 volumes have already been published. A few years later he filled temporarily the chair of

universal history at the Curso, and this led him into a new field of investigation embodied in the *Universal History*. He began the study of philosophy and soon became the leading representative of positivism in Portugal, explaining his ideas in *General Outlines of Positivistic Philosophy* and in the *System of Sociology*. He also carried on investigations in Portuguese ethnology and folk-lore. He wrote also *A History of the University of Coimbra*, and a volume entitled *Positivistic Solutions of Portuguese Politics*. In the midst of these scholarly pursuits he entered actively into politics. He was editor of the paper called *O Positivismo* and was a Republican leader in the Cortes. He has been tireless in his efforts to spread his teachings, not merely as abstract doctrines, but as a practical solution of the problems which confront the Portuguese people. He has been the leading spirit in the Republican movement of Portugal for years. In the forty years during which he taught in Lisbon he wrote more than one hundred books covering almost every phase of Portuguese life and thought. He also maintained relations with the principal thinkers of Europe. See PORTUGAL, paragraphs on *History*.

**BRANDEIS, LOUIS D.** See UNITED STATES, section ADMINISTRATION; and RAILWAYS.

**BRANDY.** See LIQUORS, FERMENTED AND DISTILLED.

**BRAYTON, CHARLES RAY.** An American lawyer and politician, died September 22, 1910. He was born in Warwick, R. I., in 1840, and from 1859 to 1861 attended Brown University. In the latter year he enlisted for service in the Civil War and served until 1865, when he was brevetted brigadier-general of volunteers for faithful and meritorious services. He was appointed captain in the 17th United States Infantry in 1867, but resigned the same year. He was admitted to the bar in 1891. From 1870 to 1874 he was United States pension agent of Rhode Island and from 1874 to 1880 he was postmaster of Providence. In 1876-7 he was chairman of the Republican State Central Committee. In 1886-7 he was chief of the Rhode Island State police. From 1896 to the time of his death he was a member of the Republican National Committee. General Brayton, who was blind, had for thirty years complete political control of the State of Rhode Island and in spite of attempts made at various times to dislodge him held this position until he died. In 1907 James H. Higgins became Democratic governor of the State. His chief campaign argument had been opposition to the political control of General Brayton and as soon as he took the chair of office he undertook to drive Brayton from his headquarters in the office of the sheriff of Providence county in the State House. Although General Brayton had, at that time, no political position in the State, he occupied this office and from it dictated the political policies that he wished put into effect. The sheriff refused to give the order to eject General Brayton from his office. His powers over the political destinies of Rhode Island had their foundation in the fact that the governor of Rhode Island had little power and that by laws of representation the small towns in the State are entitled to the same number of representatives as the large cities. General Brayton's power lay in his ability to control the representatives from the small towns. He was

the last of the great bosses who controlled state politics.

**BRAZIL, UNITED STATES OF.** The largest republic of South America. Capital and largest city, Rio de Janeiro.

**AREA AND POPULATION.** The estimated area of the 20 states and Federal District is 3,218,139 square miles. The census of 1900 showed 17,318,556 inhabitants. In addition, the Acre territory, acquired from Bolivia in 1903, has about 73,720 square miles and 65,000 inhabitants. An estimate of 1908 placed the total population at 20,515,000. The results of the census of December, 1910, are not yet available, but doubtless the population exceeded 21,000,000. Estimates (probably not very accurate) of municipal populations in 1910 were: Rio de Janeiro, 1,000,000; São Paulo, 400,000; Bahia, 350,000; Pará, 200,000; Pernambuco, 150,000; Porto Alegre, 100,000; Ceará, 50,000; Manaus, 50,000.

From 1820 to the end of 1909 immigrants to Brazil numbered 2,742,622, of whom 1,240,708 were Italians, 702,790 Portuguese, 319,762 Spaniards, and 101,419 Germans. In 1907 immigrants numbered 67,786; in 1908, 94,695; in 1909, 85,416; of the last number, 42,765 entered at Rio de Janeiro and 36,014 at Santos, and 30,577 were Portuguese, 16,219 Spaniards, 13,668 Italians, 5663 Russians, 4027 Turks, and 4008 Austro-Hungarians.

In general the people have little education. Primary instruction is not compulsory (though nominally so in some parts of the country), but in recent years, it is said, has made considerable progress. According to statistics recently published at Rio de Janeiro, primary schools number 11,147, with 565,922 pupils, and secondary schools 327, with 30,258 pupils. These figures include both public and private schools. There is no real university in the republic, but various establishments offer some opportunity for technical and professional instruction. Roman Catholicism is the prevailing religion, but ecclesiastical equality obtains.

**INDUSTRIES.** The principal industry is agriculture, though only a small part of the country is under cultivation. The chief crop is coffee, which is grown in the states of Espírito Santo, Minas Geraes, and Rio de Janeiro, but mostly in São Paulo. Coffee production for years ending June 30 is reported as follows: 1901, 10,989,166 bags (of 60 kilos each); 1905, 10,014,560 bags; 1907, 19,832,033 bags; 1909, 12,459,744 bags; 1910, 15,051,756 bags. Vigorous efforts are being made, especially by the state of São Paulo, to maintain the price of coffee, by imposing an additional tax on exports over a certain amount and by encouraging consumption. In the production of cacao, as well as coffee, Brazil ranks first, the cacao crop (produced chiefly in the state of Bahia) amounting to over 72,000,000 pounds a year. About half of Brazil's sugar yield is in the state of Pernambuco, which produced in 1909 about 156,000 tons and in 1910 (estimated) over 200,000 tons. Tobacco is raised in increasingly large amounts, especially in Bahia. Other crops are rice, corn, yerba mate, and bananas. Rubber (including caucho) received at Pará in the fiscal year 1909 amounted to 38,008 metric tons; in 1910, 39,230. In 1910 shocking conditions, recalling those in the Congo, were reported in connection with a British syndicate and its system of enforced rubber collection in the Amazon valley.

Cattle-raising is an important industry, the



**THEOPHILO BRAGA**  
**PRESIDENT OF PORTUGAL**

10701

number of cattle in the country being perhaps 25,000,000. About 625,000 cattle are slaughtered annually in the state of Rio Grande do Sul, where the most important of the jerked-beef establishments are situated; in Matto Grosso, about 605,000; in Minas Geraes, 325,000; in the state of Rio de Janeiro and the Federal District, 225,000; in São Paulo, 135,000.

The mineral resources, which are considerable, for the most part await development. The minerals now produced in paying quantities include gold, diamonds, monazite, manganese, and mercury.

According to recently published statistics there are 3420 industrial establishments in the republic, employing 159,601 operatives and having a total capital of 681,848,663 milreis and an annual output valued at 769,782,108 milreis. The number of establishments in the Federal District is 807, with 182,314,045 milreis capital and 243,976,542 production. São Paulo is next, with 334 establishments and capital and production of 128,462,191 and 120,735,091 milreis. Of the total capitalization, 40 per cent. represents the textile industry. Cotton mills number 161, with 234,028,403 milreis capital and 135,025,663 production. The capital invested in the jute industry is placed at 15,799,500 milreis and the production 22,389,730; similar figures for the woolen industry are 14,848,000 and 11,375,000 milreis respectively. Total horse-power reported, 192,284.

FOREIGN COMMERCE. The values of imports and exports of merchandise have been as follows:

	1907	1908	1909
Imp.	\$197,227,579	\$173,017,849	\$179,690,125
Exp.	263,651,874	215,266,136	308,331,829

The values of classified imports in 1908 and 1909 respectively were: Manufactures, \$91,054,980 and \$95,873,783; food products, \$48,036,027 and \$50,049,663; raw materials, etc., \$33,062,963 and \$32,573,602; live animals, \$863,868 and \$1,393,077. The leading imports in 1908 and 1909 were valued as follows: Iron and steel manufactures, \$18,963,633 and \$19,387,837 (including rails, etc., \$4,724,061 and \$7,077,896); machinery, etc., \$16,339,606 and \$17,132,316; stone, earthen, and various minerals, \$14,159,963 and \$13,219,408 (including coal, \$9,664,560 and \$8,689,482); cotton manufactures, \$13,468,676 and \$12,479,495; flour, \$9,041,481 and \$9,269,847; arms and munitions, \$1,468,802 and \$5,764,458; chemicals, drugs, etc., \$3,745,947 and \$4,256,058; codfish, \$4,541,354 and \$4,079,400; paper manufactures, \$4,451,961 and \$3,953,983; kerosene, \$3,605,095 and \$3,681,209; manufactures of stone, earth, etc., including porcelain, \$3,864,382 and \$3,605,626; cotton yarn, etc., \$2,389,595 and \$2,553,458; woolen manufactures, \$2,907,073 and \$2,472,616.

The value of the principal exports in 1908 and the value and quantity (in metric tons) in 1909 are shown in the following table:

	Value	Quantity
	1908	1909
Coffee .....	\$111,740,270	\$161,922,682
Rubber .....	57,155,489	91,578,388
Hides .....	6,384,555	8,812,660
Yerba maté ..	8,004,154	8,025,333
Cacao .....	9,590,666	7,739,870
Tobacco .....	4,080,257	6,443,681
Skins .....	3,414,987	4,709,492
Sugar .....	1,482,146	3,247,504
Cotton .....	999,866	2,861,662

\* Bags of 60 kilos each.

Other noteworthy exports in 1909 were valued as follows: Bar gold, \$2,252,898 (4323 kilos); manganese, \$1,730,311; nuts, \$1,493,712; carnauba wax, \$1,230,638; bran, \$1,210,572; cotton seed, \$711,401; monazite sand, \$708,092; precious stones, \$288,212. In 1908 the coffee export amounted to 12,658,457 bags; rubber, 38,206 metric tons; hides, 30,412 metric tons; yerba maté, 55,315; cacao, 32,956; tobacco, 15,264. In 1905 Brazil's imports amounted to \$142,185,804, and her exports, \$223,161,260. In general the changes in the import trade during the last five years indicate that the country has started to manufacture the coarser goods it uses and to supply its simpler needs. In exports there has been little change, coffee and rubber continuing to form over 80 per cent. of the whole.

Imports and exports by countries, in thousands of dollars (U. S. gold), were as follows in 1908 and 1909:

	Imports from	Exports to
	1908	1909
Great Britain ....	49,846	48,241
Germany .....	25,699	28,007
United States ....	20,954	22,266
France .....	15,595	18,610
Argentina .....	17,531	17,923
Portugal .....	8,952	9,995
Belgium .....	8,078	7,280
Uruguay .....	5,338	6,294
Italy .....	5,872	5,237
Aust.-Hung. ....	2,770	2,366
Newfoundland ...	2,470	2,009
Switzerland .....	1,704	1,963
Netherlands .....	940	1,749
Spain .....	1,590	1,522
Norway .....	1,510	1,505
Canada .....	1,138	954
Other .....	3,030	3,771
Total .....	173,018	179,690

At the principal ports imports and exports in 1909 were valued as follows: Rio de Janeiro, \$67,625,191 and \$34,630,104 respectively (coffee, \$27,650,578); Santos, \$34,592,964 and \$130,943,928 (coffee, \$130,213,761); Pará, \$14,864,273 and \$40,431,527 (rubber, \$38,881,468); Rio Grande do Sul, \$12,762,619 and \$2,621,379; Bahia, \$8,754,838 and \$19,842,983 (cacao, \$6,606,371; tobacco, \$6,129,239); Pernambuco, \$12,762,619 and \$5,712,092 (sugar, \$2,289,456); Manaus, \$9,170,833 and \$45,750,081 (rubber, \$44,857,102).

SHIPPING. Entered in 1908 20,093 vessels, of 18,673,898 tons (Brazilian, 15,175, of 6,784,970 tons); steam, 15,031, of 18,280,897 tons (Brazilian, 10,492, of 6,583,279). Merchant marine (1909): 224 steamers, of 120,672 tons net; sail, 298, of 62,613 tons.

COMMUNICATIONS. The reported railway mileage at the end of 1908 was 11,843; at the end of 1909, 12,209; on September 15, 1910, 13,410, of which 5443 miles were state-owned. Of the increase in 1909, 290 miles belong to the Federal government and 76 miles to state governments. Railway construction in Brazil began with the purpose not of facilitating internal commerce but of bringing the products of a contributing interior territory to the nearest seaport. Thus Pernambuco became the focus of one system, Bahia of another, and Rio de Janeiro, Santos, and Rio Grande do Sul of others. For some time the need of connecting the various systems has been recognized as imperative, and at present there is a notable activity in railway extension. This activity is not limited to the

coastal region; there are under construction a line from the Santos (or São Paulo) system westward toward Corumbá near the Bolivian frontier and another from the Rio de Janeiro system northwestward into the state of Goyaz. In the north various extensions of the Ceará system are under construction. In the west work on the line which will connect the navigable waters of the Madeira and Mamoré rivers (passing around the falls of the Madeira) progressed favorably in 1909, and it was expected that about 108 miles, or half the total length, would be completed by the end of the year. Steamer service is maintained on the Amazon and some other rivers.

At the end of 1909, the telegraph system, including subfluvial and coastal cables, comprised 18,874 miles of line, with over 2000 offices. There are upwards of 3250 post-offices.

**FINANCE.** Ordinary revenue for 1909 is stated at 86,724,376 milreis gold and 290,031,934 milreis paper; extraordinary, 48,886,153 paper; in addition, from issue of new obligations, 18,083,000 paper; total, 86,724,376 gold and 357,001,087 paper. Ordinary expenditure, 74,449,102 milreis gold and 365,869,984 milreis paper; extraordinary, 28,140,056 gold; in addition, redemption of paper money, 1,973,615 paper; total, 102,589,158 gold and 367,843,599 paper. Estimated revenue for 1910: Ordinary, 84,940,526 milreis gold and 299,558,400 milreis paper; extraordinary, 19,463,333 gold and 13,560,000 paper. Estimated expenditure for 1910, 53,628,369 milreis gold and 349,455,466 milreis paper. More than half the revenue is derived from import duties. Larger estimated expenditures (1910): Finances, 36,291,294 milreis gold and 97,338,322 paper; communications and public works, 8,353,314 gold and 91,815,385 paper; navy, 5,000,000 gold and 41,564,326 paper; army, 750,000 gold and 63,207,744 paper; interior and justice, 13,500 gold and 35,722,846 paper.

The foreign debt, as reported in 1910, amounted to £78,320,078 (including £10,000,000 bonds of 1910); in addition railway loans, etc., aggregated 240,000,000 francs. On January 3, 1910, a decree of the President authorized the resumption, during the year, of payments on the foreign debt. Under the agreement of June, 1898, amortization was suspended until June, 1911. In 1910 the internal debt stood at 538,011,600 milreis paper, and the floating debt, 268,224,773. The paper money in circulation on December 31, 1908, was 634,682,852 milreis and March 31, 1910, 627,075,261 milreis. The gold milreis is worth 54.6 cents, and the paper milreis from 30 to 33 cents. In his inaugural address, November 15, 1910, the President announced his adherence to a policy of retrenchment, of strengthening the sinking and guaranty funds, and of the continued withdrawal of paper money from circulation in accordance with the law of 1898.

**ARMY.** Military service in Brazil, by the law of January 4, 1908, is compulsory for every citizen from his 21st to 44th year. Two years are spent with the colors and seven years in the reserve of the first line, and 4 years in the National Guard and 4 in its reserve. The permanent army, under the organization of 1907, had 15 regiments of infantry, 3 battalions of 3 companies each, 12 regiments of light infantry and 15 machine-gun companies. There were 9 regiments of cavalry and 3 independent regiments, 10 squadrons for infantry brigades and 12 sec-

tions of scouts. The artillery consisted of 45 4-gun field batteries and 5 6-gun howitzer batteries, 9 4-gun horse batteries, 6 4-gun mountain batteries, in addition to position batteries, ammunition columns, engineers and railway troops. For military purposes the country is divided into 13 military districts. The peace strength of the army in 1910 was estimated at about 30,000.

**NAVY.** The 1907 naval programme provided for 3 additional battleships of the Dreadnought type, 3 cruisers, 15 torpedo-boat destroyers, 3 submarines, and 2 auxiliary vessels. It was expected that all of these vessels would be delivered before the end of 1910, excepting the first-class battleship *Rio de Janeiro*, of about 19,000 tons displacement. As reported for 1910, the navy included: 2 first-class battleships, *Minas Geraes* and *São Paulo*, of about 19,000 tons each; one battleship, *Riachuelo*, of 5700 tons; 2 armored coast-guards, aggregating 6320 tons; 4 scout cruisers, 6200 tons; one protected cruiser, 3450; 2 second-class cruisers, 5840; 2 monitors, 940; 3 torpedo cruisers, 3090; 1 gunboat, 800; 1 old torpedo-boat destroyer, 500; 10 modern torpedo-boat destroyers, 6500. In addition there are several old vessels, river gunboats, school-ships, etc.

**GOVERNMENT.** The executive authority is vested in a president, who is elected for a term of four years and is assisted by a cabinet of seven ministers appointed by and responsible to himself. The legislative power devolves upon a Congress of two houses, the Senate (63 members elected for nine years) and the Chamber of Deputies (212 members, three years). The President, Senators and Deputies are chosen by popular vote. The President for the term beginning November 15, 1906, was Affonso Moreira Penna; he died in June, 1909, and was succeeded by the Vice-President, Nilo Peçanha. The latter was succeeded on November 15, 1910, by Marshal Hermes da Fonseca, who was elected on March 1. He is a nephew of Marshal Deodoro da Fonseca, the first President of the republic. The states have their own elected governors and legislatures.

**HISTORY.** In the election of March 1, 1910, Marshal Hermes da Fonseca, a leader of the Conservative party and former Minister of War, was elected by 233,882 votes, as against 126,690 cast for Senhor Ruy Barbosa. Congress opened on May 3. President Peçanha announced an improved financial condition, saying that the government's policy of economy had enabled it to raise over \$45,000,000, which had been paid out to meet the expenses of the new squadron, the new army equipments, and works of public improvement. Under the chairmanship of the Apostolic Nuncio, settled the pending differences between Brazil and Peru to the satisfaction of both parties. A disturbance occurred in the state of Amazonas, where the Governor was removed by the Opposition, who were aided by Federal troops. A Federal flotilla bombarded the town of Manaus at the instance of the Opposition leader, disturbances having arisen in the town. The President of the republic ordered the immediate reinstatement of the Governor. A slight difficulty with Argentina arising from certain insults to the flag in the respective capitals was adjusted satisfactorily to both governments in a protocol signed on August 18. The new President, Marshal Fonseca, was inaugurated on November 15. In his inaugural address he promised strict administra-

tion of justice and an energetic policy in the promotion of education and the development of trade. As to the currency, while it was desirable to reach a metallic basis, this must not be sought by hazardous means, but by providing for conversion by adequate sinking and guaranty funds and through the reduction of expenditure. It was reported by the Consul-General at Rio that in 1910 the American trade in Brazil was found to be increasing, but was held back by lack of properly trained representatives of American business and by defective transportation and banking facilities. German exporters had made great progress during the last decade and had secured about the same share of Brazilian commerce as the United States.

On the night of November 22 the crews of the two Brazilian warships, *Minas Geraes* and *São Paulo*, mutinied in the harbor of Rio de Janeiro, killed several of their officers, and then trained their guns on other vessels and on the city. Some of the coast-defense ships joined them, and the rebels finally controlled the greater part of the Brazilian navy. They flew the red flag and sailed about the harbor. Finally they sent a message to the President demanding the abolition of corporal punishment, increase of pay and a reduction of the hours of labor. Receiving no response they began the bombardment of the city on the following day. A member of the Chamber of Deputies went out to them with a flag of truce. The Senate yielded to the mutineers' demands for amnesty, but the Chamber of Deputies hesitated. The *Minas Geraes* thereupon took a post opposite the Government Palace and dropped shells near the naval arsenal. Thereupon the Chamber granted their demands and passed an act of general amnesty. Meanwhile the mutineers had put out to sea, but they returned on November 27 and gave up their ships to the government. They sent a message to the President expressing repentance for their action and saying that they surrendered their arms confident that amnesty would be granted. They declared that they would henceforth be obedient to the President. On the night of December 9 the marine corps stationed in forts in the harbor of Rio de Janeiro mutinied, and were soon joined by men on a scout ship. The position of the mutineers was bombarded on the following morning and they responded with shrapnel. The bombardment lasted ten hours, but finally on December 10, at eleven o'clock, the mutineers surrendered, having suffered a loss of more than 200 killed and wounded.

**BREAKWATERS.** See DOCKS AND HARBOURS.

**BREEDING.** See STOCK RAISING; BIOLOGY; BOTANY.

**BRETHREN, CHURCH OF THE**, also known as **DUNKERS** or **DUNKARDS**. A religious organization including a considerable body of Christians, whose faith and practice are not generally known outside of the localities in which they live. It originated in Germany in 1708, with Alexander Mack as the leader. Driven by persecution bodies of worshippers came to the United States and made their first settlement near Germantown, Pa. From thence they spread to various sections of the country. They recognize the New Testament as the rule of conduct, believe in the Trinity, and hold faith, repentance and baptism by triple immersion as conditions of pardon and

membership. They observe foot-washing as a religious rite, followed by an evening meal which is called the Lord's Supper. There are three groups in the denomination—the Conservatives, Progressives, and Old Orders. The Conservatives are the most numerous and number about 100,000, with 900 congregations and over 3000 ministers. This body sustains ten colleges and one of the largest denominational printing houses in the West, known as the Brethren Publishing House, at Elgin, Ill. The official organ is *The Gospel Messenger*. The General Conference of this body was held at Winona Lake in June, 1910. During the latter part of the year Elder Galen B. Royer, secretary and treasurer of the General Mission Board, visited the churches in Denmark, Sweden, France and Switzerland. Two missionaries were added to the force in foreign fields during the year, one going to India and the other to China. At the General Conference held in Des Moines, Ia., in 1908, the change of name of the organization from German Baptist Brethren to the Church of the Brethren was made. Dunker or Dunkard is a name that is not recognized within the denomination. The Progressive Brethren number about 17,000, and the Old Order, 4000. The former maintain a college and publishing house at Ashland, Ohio. A small body known as the Seventh Day German Baptists is now nearly extinct. The few members who are left live in the vicinity of Ephrata, Pa.

**BREWER, DAVID JOSIAH.** An associate justice of the United States Supreme Court, died March 28, 1910. He was born in Smyrna, Asia Minor, 1837. His father was a missionary in that city. He graduated from Yale College in 1856. Among his classmates were Senator Chauncey M. Depew and Justice Brown of the United States Supreme Court. Justice Brewer was a nephew of the late Stephen J. Field. After his graduation from college he studied for a time in the office of his uncle, Dudley Field, in New York City. He subsequently took a course in law at Albany and graduated from the Albany Law School in 1858. In the following year he removed to Leavenworth, Kansas, where he took up the practice of law at a time when that State was the battle-ground of the pro-slavery and anti-slavery factions. He filled the office of United States Commissioner and was judge of the probate and circuit courts. He was appointed a United States district judge in 1865 and remained on that bench for the four years following. In 1869 he became county attorney, and from 1870 to 1884 was a justice of the Supreme Court of Kansas. From the latter date until 1889 he was a judge of the United States Circuit Court, holding this position until his appointment in the last-named year to the Supreme Court bench by President Harrison. Justice Brewer in 1896 was appointed by President Cleveland a member of the Venezuelan Boundary Commission, and was also a member of the Venezuelan British Arbitration Tribunal in 1899. In 1904 he became president of the Universal Congress of Lawyers and Jurists. Justice Brewer devoted a great deal of attention to current economic problems, and he delivered a number of addresses on constitutional, legal, and governmental subjects, which attracted wide attention. His views on current problems were broad and he had a notable sympathy for all progressive movements. On several occasions during President Roosevelt's administration he

made addresses which severely criticised the former for certain of his more aggressive and radical policies. His legal knowledge was profound and he was considered one of the ablest of the line of eminent jurists who have occupied seats on the bench of the Supreme Court of the United States. He was the author of several books, among them, *The Pew for the Pulpit* (1897); *The Twentieth Century from Another View Point* (1899); *American Citizenship* (1902); and *The United States a Christian Nation* (1905).

**BREWER, WILLIAM HENRY.** An American scientist and educator, died November 2, 1910. He was born in Poughkeepsie, N. Y., in 1828. He entered Yale with the first class of the Scientific School of that institution and graduated with the degree of Bachelor of Philosophy in 1852. He studied at Heidelberg, Munich and Paris, and on his return to the United States was chosen professor of chemistry and geology in Washington College, Pennsylvania, serving in that position two years. From 1860 to 1864 he was first professor of the Geological Survey of California, and in 1863-4 was professor of chemistry in the University of California. In 1864 he was appointed professor of agriculture at the Sheffield Scientific School and held this chair until 1903, when he became president emeritus. Professor Brewer did much important work as an explorer. With Clarence King, he surveyed large tracts of the Sierras, and one of the highest peaks in those mountains is named Mt. Brewer in his honor. In 1904 he was one of the party on the famous trip of the *Miranda* into the Arctic regions. The trip was attended with many hardships, which included the grounding of the vessel on rocks. He was associated in both Connecticut and California with various governmental surveys, geological and topographical. He was a member of the National and Connecticut Academies of Sciences, and was at different times president of each. Professor Brewer was an eminent geologist and expert mining engineer, an Arctic explorer, art critic and author. During his service at Yale University he was one of the best known and popular members of the faculty. He wrote *The Botany of California* (1875), as well as many scientific reports and articles in scientific journals. In 1906 he was a member of the United States Forestry Commission, and in 1903 was a member of the Scientific Survey of the Philippine Islands.

**BREWSTER, E. T.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**BRIAND, ARISTIDE.** See FRANCE.

**BRICKLAYERS' STRIKE.** See STRIKES AND LOCKOUTS.

**BRICK TRUST.** See TRUSTS.

**BRIDGES.** The record of bridge construction in 1910 did not reveal any work of great importance either on the score of magnitude or for novelty of design. Below follow descriptions of some of the more noteworthy structures of the year.

**QUEBEC BRIDGE.** Since the collapse of the unfinished bridge over the St. Lawrence at Quebec in 1907, several plans for a new structure have been under consideration. During the year 1910, after examining many designs and proposals, the Bridge Board recommended for adoption a plan that involved a five span bridge, namely: 2 anchor, 2 cantilever, and 1 suspended girder spans, all of equal length, 586 feet. The bridge

will carry 2 railroad tracks, 2 trolley tracks, 2 roadways and 2 footpaths, all on the same level. Work had begun and the caisson for the north pier, adjoining the pier of the original bridge, had been sunk at the end of the year.

**ELECTRIC RAILWAY BRIDGE AT ST. LOUIS.** Among the notable steel bridges completed was that known as the McKinley Bridge, to carry the lines of the Illinois Traction System, aggregating about 550 miles of inter-urban roads, across the Mississippi from East St. Louis, Ill., to St. Louis, Mo. It is about three-quarters of a mile below the Merchants Bridge, and three miles above the older Eads Bridge, and has two piers in the river channel. On the Illinois side are two approach spans, one 150 feet and the other 250 feet long, both deck trusses. Beyond these are three channel spans, each 517½ feet long, of the through truss type, and giving 550 feet clear waterway between the piers. At mean high water there is 50 feet head room under this part of the bridge, except at the extreme channel piers, where it is only 45 feet. From this point, approaching the Missouri side of the river are three deck truss spans, one 250 feet and two of 150 feet each, beyond which is a 98-foot deck plate girder span to carry the structure of the bridge over the Burlington railroad tracks. The through trusses of the channel spans are 78 feet deep at centre, with eighteen panels 28 feet 9 inches long centre to centre. The two trolley car tracks rest on transverse beams between the trusses, outside of which are roadways, each 13 feet wide, supported by cantilever floor beams. The design of the structure was so drawn that if it should become necessary, in the future, to allow steam locomotives and the corresponding heavy cars to use the bridge, heavier members could be substituted for those that now compose it, at moderate cost. During the earlier stages of construction, work was delayed by the loss of the false work of the middle channel span and a large traveler used for erecting the steel-work, by the sudden action of a flood that carried an immense amount of ice down and drove everything before it.

**EIGHT TRACK LIFT BRIDGE, CHICAGO.** A notable bridge was completed over the Sanitary and Ship Canal at Campbell Avenue and 31st Street, Chicago. To carry eight railway tracks over a navigable waterway required an unusual design. In this case, the Scherzer rolling lift type of bridge was adopted, and in order to keep the weight of the movable parts within reasonable limits, it was built of four sections, that is to say, four rolling lift spans side by side, each carrying two tracks, and pivoted on the same trunnion pier. Each span is 154 feet long, centre to centre of bearings, and is 29 feet wide. The bridge is set on a skew of 21 degrees from the centre line of the canal, and when open gives a clear waterway 120 feet wide for navigation. An approach span at either end of the lift span gives another 89 feet waterway, but of course for small craft, such as launches, only. Each lifting bridge is raised by means of two 50-horsepower direct current electric motors, control of which is interlocked with the signals governing the tracks passing over it. The locking or latching of each span is effected by a 3-horsepower motor also interlocked with the signals, thus putting an effective control over approaching trains in either direction.

**CONCRETE VIADUCT, KNOXVILLE, TENN.** Among the reinforced concrete bridges built during the

year was one at Asylum Avenue, Knoxville, Tenn., that differs from most of the recent works of this character in being of girder type. It is 328 feet long, and carries a roadway with two sidewalks across two lines of railway and a small stream, known as Second Creek, with an intersecting approach at one end, leaving the main approach at an angle of 30°. The roadway is 28 feet wide, with the two sidewalks 6 feet wide each. There are three 46 feet spans, two 48 feet skew spans, four 23 feet spans, and three short approaches. Each span has three uniformly spaced pilaster columns carrying a transverse floor-beam, on which rest six main longitudinal girders and two shallower fascia girders that carry the floor slab of the sidewalk. There is one deep transverse floor-beam between each set of columns. The upper deck girders and main floor slab are built independently of the supports, and the whole floor has a two-inch free expansion space. Provision is made for one trolley track across the structure, and at each span a 24-inch cast iron pipe was set in the roadway to serve as a base for the poles that will carry the trolley wire. The reinforcement presents no unusual features,  $\frac{1}{2}$  inch and  $\frac{3}{4}$  inch steel being used in that part of the work. The location, requirements of traffic and a variety of other considerations determined the girder type of bridge here in preference to an arch.

**REINFORCED CONCRETE ARCH BRIDGE.** At Auckland, New Zealand, a bridge was completed that was notable as the longest span concrete arch built, up to 1910. It carries Grafton Street across a deep gully, and it has a total length, including approaches, of 960 feet. The main span is an arch of 320 feet and consists of two separate ribs, between which are cross streets. From the ribs and streets, slender columns carry the floor and roadway. On one side of the 320 foot arch span are six approach spans, varying in length from 35 feet to 81 feet; and on the other are three approach spans, 43 feet to 81 feet. The piers from which the main arch springs are 100 feet high and 18 feet wide at the top. The roadway is 24 feet wide, and on either side is a 6-foot sidewalk, on the outside of which is an ornamental parapet. The entire work is of reinforced concrete, the cement for which was furnished from a nearby establishment. To form an idea of the size of the undertaking, it is to be noted that in constructing the centring for the main arch span, about 400,000 feet of lumber were used. In addition to this, a large amount was required for the forms and centres for the remainder of the bridge. The cost of the structure was \$163,000.

**MEADOW STREET BRIDGE, PITTSBURG, PA.** Another bridge, of similar design, and built of reinforced concrete, was one recently constructed across a valley and small stream at East Liberty, a suburb of Pittsburg, Pa. The arch of this bridge is 209 feet span and 46 feet high above the springing line. The whole structure is 454 feet long, with a 30-foot roadway and two sidewalks 10 feet wide each.

**PEND OREILLE RIVER BRIDGE.** An unusual piece of work in bridge erection was done on the Idaho and Washington Northern Railroad, which follows up the valley of the Pend Oreille River on its new extension to Metaline, Wash. The line had to be carried across the river in Box Canyon, where the walls are steep and rocky. While it was possible to get locations for abutments on the cliffs, it was out of the

question to use false work for the erection of the spans, as the track level was to be 140 feet above the water, which furthermore was very deep, 200 feet at that point, and had a swift current. After the shore span, 145 feet long, was built, the 280-foot main channel span was started out from the pier and tied back to the former by means of temporary eye-bars. As the completed channel span was estimated to weigh about 700 tons, the structure to which it was secured, and which had to hold the increasing weight as construction progressed, was anchored fast by loading it with about 600 tons of rails, distributed over its length. Material was put in place by a derrick car, run out on the span as it was built; and owing to the location and surroundings, work could be carried on from one end only. This method of erecting a bridge was not new, but was unusual, and under the circumstances was the cheapest way of surmounting the difficulty of erection for a bridge of the size of this one, 500 feet in all.

**STEEL VIADUCT, ERIE RAILROAD.** During the year the Erie Railroad put in use an improvement at the west end of Jersey City, N. J., that, while not remarkable as a piece of bridgework, was of great importance to the traveling public, and during its construction involved careful management and engineering skill in putting in foundations. In order to avoid the use of Bergen Hill Tunnel, that accommodated only two tracks and was objectionable for passenger traffic, a cut was made through the hill and the line relocated and run on a different grade, making it an elevated road all the way from the yard and terminus on the Hudson River to the new cut, a distance of about 2600 feet. The steel portion is 1776 feet long, and consists of deck plate girders, alternately 30 feet and 61 feet long, supported on transverse girders that rest on three columns each. The pedestals for the columns were in some cases put down on a pile foundation, and in others to a concrete filled caisson. The underlying soil was a hard sand, well saturated with ground water. Experiments showed that a reinforced concrete pile gave the best results in supporting a structure of this kind, and accordingly a pile of this sort 8 inches by 8 inches at the lower end and 16 inches by 16 inches at the top, was used in groups, on which to rest the concrete pedestals of the steel columns. There were 250 of these piles used, from 38 feet to 65 feet long. Under some of the columns, however, the sand was regarded as of a nature too wet and soft to give the lateral pressure needed to properly hold a pile, and in these cases, caissons were put down, 6 feet in diameter, without air pressure filled with concrete and on these the pedestals were built up. The difficulties of the work were not diminished by the necessity of carrying all the traffic over the principal portion of this line without interruption or serious delay.

**COPPER RIVER BRIDGE.** On the Copper River and Northwestern Railroad in Alaska an interesting bridge has been completed under extraordinary engineering conditions and costing approximately one-half million dollars. It consisted of four camel back spans aggregating 1550 feet, resting on three concrete piers, and two massive abutments. Two of the spans are each 450 feet in length and the others are 300 and 450 feet in length. As two large glaciers are in close proximity to the work and the river is either

frozen or else moves with a fourteen-miles-an-hour current, the work presented many difficulties. With a depth of ice of six feet during the winter months it was possible to use the ice itself to hold the piling for the false work, letting it rest directly on the river bottom. Accordingly the first two spans were erected before the ice went out of the stream and then the big span was cantilevered from the 300-foot span. Copper River Bridge is by far the most important work that has been executed in the northwest and is typical of much of the engineering that must be done on this Alaskan Railway.

**CONSTANTINE VIADUCT.** An interesting masonry bridge was completed at Constantine in Algeria, crossing the deep and precipitous gorge of the Rhumel River. The bridge takes the form of a viaduct 1475 feet in length and comprising 27 arches of very unequal dimensions. Over the gorge itself the largest of these arches was built with a span of 230 feet and a height of about 330 feet above the bed of the river. The viaduct resembles the famous Luxemburg bridge and consists of two parallel arches each 13 feet deep, supported by an interval of 13 feet and connected at the crown by a plate of reinforced concrete.

**A LARGE MASONRY ARCH BRIDGE.** During the year there was erected on the new Belle Gardez Electric Railway in France a notably long span masonry arch bridge. This bridge has a main span of two hundred and sixty-two feet nine and one-half inches and crosses the Valseriene stream, a tributary to the Rhone, in a wild and picturesque spot in the Jura Mountains close to the frontier of Switzerland in the Department of Ain. It was designed by M. Picard, Engineer-in-Chief of the French Bridge Department, and crosses a deep rock gorge whose precipitous banks are over one hundred and seventy feet in height. The rock of the bank was employed as the abutment for the single arch which springing from the sides has a radius of 164 feet  $\frac{1}{2}$  inch at the intrados and 77 $\frac{1}{2}$  feet at the extrados. The width of the bridge is 17 feet 10 $\frac{1}{2}$  inches, increased at the coping to 28 feet 8 inches at the parapets so that there is sufficient width for two foot pavements, a railroad track and roadway parallel to the railroad track. The main arch is surmounted by eleven smaller arches on either side with circular openings of 17 feet 4 $\frac{1}{2}$  inches clear. These are carried on piers. The keystone of the main span is approximately 219 feet above the level of the water so that the erection of wooden false work from the stream to the level of the abutments was an engineering problem in itself. Three substantial towers were built of wood strongly braced together and on this the false work for the masonry arch was constructed. The work was commenced in August, 1908, and the erection of the masonry begun on August 31, 1909. The false work was removed during the remainder of that year, so that early in 1910 the bridge was ready for use. Its height, equal to that of the towers of Notre Dame in Paris, is greater than any single span masonry bridge in the world. The total cost is estimated at \$72,000.

**BRISTOL, AUGUSTA (COOPER).** An American author and lecturer, died October, 1910. She was born in 1835 and was educated in the public schools and at the Kimball Union Academy. She became a teacher. In 1866 she mar-

ried Louis Bristol. She wrote and lectured on moral and social subjects. In 1880 she went to France to study the relation of labor and capital. She nominated Benjamin F. Butler for President of the United States on the Greenback ticket and delivered the principal address at the World's Fair at Chicago before the Women's Conference. She was the author of *Poems* (1868); *The Relation of the Maternal Function to the Woman Intellect* (1876); *The Philosophy of Art* (1880); *The Present Phase of Woman's Advancement* (1880); *Science as the Basis of Morality* (1880); *The Web of Life* (poems, 1895), and *A Spray of Cosmos* (1904).

**BRISTOW, SENATOR.** See KANSAS.

**BRITISH ACADEMY.** See ACADEMY, BRITISH.

**BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.** See ADVANCEMENT OF SCIENCE.

**BRITISH COLUMBIA.** A province of Canada (since July 1, 1871). Capital, Victoria. Area, 312,630 square miles. Population (estimated 1910), 321,733. Average annual yield of industries: Minerals, \$25,800,000; lumber, etc., \$12,700,000; manufactures, \$12,000,000; fruit, farm products, and fisheries, about \$8,500,000 each. (See CANADA.) The government consists of the Lieutenant-Governor, appointed by the Governor-General of Canada, the Executive Council (responsible ministry of seven members), and the unicameral Legislative Assembly (42 members). In 1910, Lieutenant-Governor, Thomas W. Patterson (appointed December 3, 1909); Premier, A. E. Phillips.

**HISTORY.** Reports were published in June of important gold discoveries at Stewart, and a great many people left Seattle and other points to the south for the new gold fields. The question of Asiatic labor came up again in 1910. The Grand Trunk Railway petitioned the British Columbia government for permission to import Asiatic labor to work in its mining section. It agreed to employ Asiatic labor only when white labor could not be had and also to employ all the available white labor at the current rates of wages. It declared it could not continue construction for the completion of its present contracts in British Columbia unless it had recourse to Asiatic labor. The government rejected this petition. Public opinion has changed somewhat in the last few years on the Asiatic question. While the Japanese were formerly considered more desirable immigrants than the Chinese, the latter were coming to be regarded more favorably. This was attributed in part to the efficient and aggressive qualities of the Japanese, who intensified industrial conditions. Complaints were common that the Japanese were avoiding the terms of the agreement with Japan limiting immigration and that many workmen were brought in under secret arrangement. It was recognized that the exclusion of the Japanese would cost a high price, since wages ranged from \$3 to \$4 a day, but the belief that white supremacy was at stake in the matter outweighed with many persons any other consideration.

**BRITISH DEPENDENCIES.** See separate articles on colonies and dominions.

**BRITISH EAST AFRICA PROTECTORATE.** A British dependency extending from the Umba to the Juba rivers, and inland to the Uganda Protectorate. Estimated area, 177,100 square miles; estimated population, 4,038,000.

Arabs and Swahilis on the coast, Bantu-speaking tribes and Masai, Somalis, and Gallas in the interior make up the bulk of the population, which includes Asiatics to the number of 25,000. Mombasa, the largest town (30,000 inhabitants), is on Mombasa Island, which has two fine harbors, one at Mombasa, and one at Kilindini, which connects by a pier with the Uganda Railway. Nairobi, the capital, and the central station of the Uganda Railway, has 14,000 inhabitants (700 European). Paganism prevails; but Mohammedan and Christian converts are numerous. There are 3200 square miles of valuable timber (rubber, mangroves, ebony, copal, cedar, camphor, cork, iron-wood, etc.). The uplands afford extensive pasture grounds. Corn, rice, cotton, and tobacco are cultivated. Iron, mica, graphite, opals, and carbonate of soda are found. Both mining and agriculture are undeveloped. Imports and exports (1908-9), £797,158 and £436,313 respectively; in 1909-10, £775,246 and £590,057. Shipping entered (1909-10), 1,008,014 tons. The length of the Mombasa-Victoria (Uganda) Railway (State) is 584 miles; construction cost, to March 31, 1909, £5,482,670. Steamers are run on the lake in connection with the railway; and a telegraph system, with 2263 miles of wire, connects the principal towns, while a cable runs from Mombasa to Zanzibar. Revenue (1909-10), £593,040; expenditure, £669,405.

In 1908 foreign consular jurisdiction in the Zanzibar strip of coast was transferred to the British court, and the whole protectorate is now virtually a British crown colony. It is administered, under the control of the Colonial Office, by a governor (1910, Sir Percy Girouard), who is also commander-in-chief of the military forces. See *EXPLORATION, Detailed Surveys of Africa*.

**BRITISH GUIANA.** A British colony, on the northeastern coast of South America. Estimated area, 90,277 square miles; population (1891), 278,328; 1904 estimate, 301,923; 1908 estimate, 304,089. Births (1908), 8299; deaths, 9381. Capital, Georgetown, with 53,176 inhabitants. Negroes, East Indians, Europeans, Chinese, aborigines, and mixed races make up the population. The 223 schools (1908-9) had 33,888 pupils and received £25,274 in aid from the government. Of the 140,930 acres under cultivation in 1908-9, 38,000 acres were under rice, against 29,915 in 1907-8 (production, 84,851,200 pounds; of which 8,300,677 were exported and 76,550,523 were locally consumed); under sugar, 71,310 acres (amount available for export at end of 1909, 115,633 long tons). The coffee production in 1908-9 was 89,000 pounds; it has never previously reached 1000 annually in the last decade. The gold mines, which have been extensively worked for years, yielded 67,209 ounces in 1907-8, valued at £245,534. In 1908-9 diamonds (5063 carats) were exported to the value of £8486, against 1863 carats, valued at £3027, in 1907-8. Imports for 1908-9 were valued at £1,838,947; textiles, £284,273; flour, £201,350; manures, £188,581; meats, £63,976; tools, etc., £58,008. Exports, £2,104,176 (sugar, £1,257,828; raw gold, £271,300; rum, £185,852; balata, £98,128; rice, £50,064; timber, etc., £22,178). Length of railway (1909), 95 miles; length of post-office telegraphs and cables, 559 miles; canals, 12 miles; good roads, 264 miles; post-offices, 74. Tonnage entered and cleared (1908-9), 961,384. Revenue and expenditure

(1908-9), £540,053 and £539,196 respectively; 1907-8, £546,882 and £517,706. Public debt, March 31, 1909, £925,295. The two banks had, March 31, 1906, a note circulation of £117,701; the savings banks (December 31, 1908) had 28,311 depositors credited with £297,230. The colony is administered by a governor (1910, Sir Frederic Mitchell Hodgson).

**BRITISH HONDURAS.** A British crown colony in Central America, bordering on the Caribbean Sea. Area, 7562 square miles; population (1901), 37,479; estimated, 1908, 43,270. Marriages (1908), 420; birth rate 36.746 (38.62 per cent. illegitimate), death rate 23.242 per cent. per thousand. Capital, Belize, with 16,047 (estimated) inhabitants. There were 42 primary schools in 1908, with 4488 pupils, receiving £3250 in aid from the government; besides 4 receiving no aid; 5 secondary schools or departments, with 291 pupils. The highlands afford abundant pasture. Mahogany and logwood are the staple products, and bananas, coffee, plantains, etc., are grown. Imports and exports (1908-9), £558,760 and £457,970 respectively, against £496,430 and £454,370 in 1907-8. In 1908-9 mahogany to the amount of 14,398,422 superficial feet was exported; logwood, 5774½ tons; bananas, 471,600 bunches; cedar, 736,639 feet; cocoanuts 5,072,150; chicle, 1,790,865 lbs. Telegraph and telephone lines connect Belize with Corosal, Punta Gorda, and other stations. Tonnage entered and cleared (1908), 507,443. Revenue and expenditure (1908-9), £75,070 and £111,480 respectively; 1907-8, £81,210 and £106,180. Public debt (1908), £34,736. The Bank of British Honduras is located at Belize. There are 6 government savings banks with (December 31, 1908) 630 depositors credited with £14,161. The colony is administered by a governor (1910, Col. E. J. E. Swayne).

**BRITISH INDIA.** See INDIA, BRITISH; and ANTHROPOLOGY AND ETHNOLOGY.

**BRITISH NEW GUINEA.** See PAPUA.

**BRITISH NORTH BORNEO.** A British protectorate occupying the northern part of the island of Borneo. Area, about 31,100 square miles (coast line, over 900 miles); estimated population (Mohammedans, aboriginal tribes, and Chinese), 160,000. Chief towns, Sandakan (6000 inhabitants) on the east coast and Jesselton on the west. There are Catholic and Protestant missions. On the lands alienated on leases tobacco, tapioca, sago, rubber, cocoanuts, and coffee are cultivated. Coffee yield 1909, 3,000,000 lbs.; 1908, 3,000,000; 1907, 12,000,000; 1905, 50,000,000. Timber, gums, fruits, camphor, rattans, and sweet potatoes are also produced for export. Coal, iron, gold, and mineral oil are known to occur. Birds' nests, seed pearls, and beche-de-mer are exported. Imports (1909), 2,918,307 dollars Mexican; exports, 4,575,412 (leaf tobacco, 2,521,901). There are 120 miles of railway; internal telegraph and exterior cable connection; and several branch banks. Revenue and expenditure (1909), 1,803,522 and 755,323 dollars respectively. A governor (1910, E. P. Gueritz) administers the colony, under the control of the British North Borneo Company.

**BRUNEI** (area, 3000 square miles; population—Malays, Kadayans, Bisayas, Muruts, Chinese, etc.—25,000), on the northwest coast of Borneo, was placed under British protection in 1888. Chief town, Brunei (10,000 inhabitants). Ruling sultan, Mohammed Jamal-ul-alam; he re-

ceives annually from the state funds £21,000 for himself and his two ministers.

**BRITISH SOLOMON ISLANDS.** Guadalcanar, Malaita, San Cristobal, New Georgia, Yela, Tulagi, Santa Cruz, Vanicoro, Choiseul, Ysabel, Kausagi, Lord Howe's group, islands in the Bougainville Straits, and other isles and islets in the western Pacific, belonging to Great Britain. Area, 8357 square miles; population: 210 whites, 150,000 natives. Imports (1907-8), £49,252; exports, £51,602; revenue (1909-10), £11,356; expenditure, £8500. Resident-commissioner (1910), Charles M. Woodford, with headquarters at Tulagi.

**BRITISH SOMALILAND.** A British protectorate on the Gulf of Aden. Area (estimated), 68,000 square miles; population, largely Mohammedan nomads, about 300,000. Berbera, with 30,000 inhabitants in the trading season, is the chief town; Zeila has 15,000, Bulhar 12,000. Imports (rice, piece-goods, shirtings, dates, etc.) amounted in 1908-9 to £293,565; in 1909-10, to £283,648. Exports (skins and hides, ostrich feathers, gum, cattle, and sheep), in 1908-9, £227,783; in 1909-10, £206,252. Transport is by camels; there are 200 miles of telegraph lines. Tonnage entered and cleared (1908-9), 178,645. Revenue and expenditure (1908-9), £30,326 and £134,534 respectively; grant-in-aid, £89,000. The protectorate is governed under the Colonial Office by a commissioner (1910, Col. Sir W. H. Manning), who is also commander-in-chief of the military forces (local troops, supplemented by a force of 400 Indians).

In the spring of 1910 the government resolved on the evacuation of the interior of Somaliland and at the beginning of April it was reported that the evacuation was complete. This was sharply criticised by Lord Curzon as an abandonment of Imperial interests. The troops, he said, had, by their presence, maintained a local peace. The result of their withdrawal would be the breaking up of settlements, the disbandment of the local troops and a virtual violation of pledges of protection. On the other hand, it was said that the regular troops were of no use against an elusive foe like the Mullah, and that it was better to arm the natives with rifles and let them defend themselves against the enemy as best they could. Reports of an attack on eight villages by the Mullah were published at the end of November, and he was said to have carried off women, children and cattle.

**BRITISH SOUTH POLAR EXPEDITION.** See POLAR RESEARCH.

**BRITISH WEST AFRICA.** See NORTHERN NIGERIA; SOUTHERN NIGERIA; GOLD COAST COLONY; SIERRA LEONE; and GAMBIA.

**BRODEUR, LOUIS P.** See CANADA, *Government and History*.

**BROADLEY, A. M.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**BROMINE.** See ATOMIC WEIGHTS.

**BROOKLYN DOCKS.** See DOCKS AND HARBORS.

**BROOKLYN INSTITUTE OF ARTS AND SCIENCES.** An educational institution in Brooklyn, New York City, incorporated in 1824 as the Brooklyn Apprentices' Library Association. It was reincorporated in 1835 as the Brooklyn Institute and again incorporated in 1890 under the present title. The membership in 1910 was 7452. The Institute carries on lectures, lecture recitals and other educational events open free to its members. The number

of these in 1910 was 570. The membership of the Institute is divided into twenty-seven departments or societies of associate members, each carrying on its own educational work. These include practically all the arts and sciences. Gifts were received by the Institute Museum of collections in art and objects of natural history and ethnology in 1910 to the value of \$158,000. The appropriation of the city for the maintenance of the Institute Museum and the Children's Museum was \$105,905. The city has appropriated, for the year 1911, \$14,550 for the maintenance of the Brooklyn Botanic Garden and arboretum in Institute Park. Attendance at the Central Museum in 1910 was 206,840; at the Children's Museum, 112,919; at the lecture recitals and concerts, 240,746, or a total of 581,515. Notable additions to the museum collections in 1910 were 130 sculptures, 7 paintings and 5 sketches by Barye, and 95 Chinese cloisonné and jades. The latter were presented by Mr. Samuel P. Avery, and the former by a number of members of the Institute who subscribed to the purchase fund. The Institute conducts a marine biological laboratory at Cold Spring Harbor during the summer months. The endowment fund in 1910 was \$457,054 and the total receipts were \$289,215.

**BROOKLYN PUBLIC LIBRARY.** See LIBRARIES.

**BROOKS, HENRY S.** A journalist and author, died April 14, 1910. He was born in England in 1831 and was educated in the University of London. He studied also at the Royal British School of Design and was gold medalist in 1849. He removed to California and was one of the pioneers of 1850. He engaged in journalistic work in 1861 and established the *California Mountaineer*, a monthly magazine. From 1862 to 1865 he was associate editor of the *Pacific Magazine*. He was at the same time manager of a gold-mining company. In 1886 he removed to New York and from that time devoted his attention to miscellaneous writings. His books include *Doña Paula's Treasure*, *A Catastrophe in Bohemia*, and *Progression to Immortality* (1902). He contributed also to magazines.

**BROOKS, J. G.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**BROOKS' COMET.** See ASTRONOMY.

**BRONNER, M.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**BROTHERHOOD OF ST. ANDREW.** See SAINT ANDREW, BROTHERHOOD OF.

**BROUGHTON, LORD.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**BROWARD, NAPOLEON BONAPARTE.** An American public official, formerly governor of Florida, died October 1, 1910. He was born in Duval county, Florida, in 1857. He began work at fourteen years of age in a logging camp and later labored as a farm hand, steamboat roustabout, cod fisherman on the Grand Banks and seaman on sailing vessels and fishing boats. He became joint owner of a steamship, and later became proprietor of a wood yard. From 1890 to 1892 he was engaged in phosphate mining, and in 1895 engaged again in the steamboat business as owner of a steam tug, which from 1896 to 1898 he commanded on eight trips, conveying war material to the Cubans, then in insurrection. From 1902 to the time of his death he was engaged in business in Jacksonville, Key West and Tampa, Florida. From 1887 to 1900 he was sheriff of Duval county, Florida. He was

elected a member of the State House of Representatives in 1900, and from 1904 to 1909 was governor of the State. He received the Democratic nomination for United States Senator from Florida in the primaries held in 1910. See FLORIDA.

**BROWN, ALICE.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**BROWN, ARTHUR ERWIN.** An American naturalist, died October 29, 1910. He was born in Bucks County, Pa., in 1850, and was educated privately. He was widely known in scientific circles as a zoologist and biologist, and was a member of the Academy of Natural Sciences, of which he was curator and then president. He was secretary of the Zoological Society of Philadelphia and the active head of the zoological gardens of that city. He was corresponding member for the Zoological Society of London and wrote zoological and biological articles for journals and meetings of societies.

**BROWN, G.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**BROWN, P. H.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**BROWNE, E. A.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**BROWNING, OSCAR.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**BROWNSVILLE INCIDENT.** See UNITED STATES, section *Army*.

**BROWN-TAILED MOTH.** See ENTOMOLOGY.

**BROWNELL, SIMEON.** An American Prohibitionist, abolitionist and philanthropist, died April 21, 1910. He was born in 1828. He grew up near Bennington, Vt., where he became one of the earliest anti-slavery advocates and was an active conductor of the "underground railway," which provided for the safety of fugitive slaves. He was for years owner of extensive slate quarry interests in New York and amassed a large fortune. He was active in philanthropy for over a third of a century. He was once nominated for Lieutenant-Governor of New York. He was an ardent advocate of Prohibition and was called "Old War Horse of Prohibition."

**BROWN UNIVERSITY.** An institution of higher learning at Providence, R. I., founded in 1764. There were enrolled in the several departments of the university, in 1910-11, 650 men, undergraduates, and 199 women. There were, in addition, 74 graduate students, including both men and women. The faculty numbered 78. There were no notable changes in the faculty during the year and no noteworthy benefactions were received. The John Hay library building was completed and dedicated in 1910. The total productive funds of the university amounted to about \$3,500,000 and the annual income to about \$213,000. The President is Dr. W. H. P. Faunce.

**BRUCE, A. B.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**BRUCE, Sir CHARLES.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**BRUGNATELLITE.** See MINERALOGY.

**BRUSSELS UNIVERSAL AND INTERNATIONAL EXPOSITION.** See EXPOSITIONS.

**BRYAN, EDWARD PAYSON.** American railway official, died January 23, 1910. He was born in Windsor, O., in 1850 and was educated in the public schools and in the preparatory department of Denison University. He learned telegraphy and took a place with the Louisville

and Nashville Railroad, rising to the position of superintendent. In 1895 he became vice-president and general manager of the Terminal Railway Association of St. Louis, a post which he held for five years. Under his supervision the St. Louis Terminal was built. In 1900 Mr. Bryan accepted the general management and vice-presidency of the Rapid Transit Construction Company of New York City. He held the same office with the Interborough Railway Company. In 1905 he became president of the latter company. In 1908 he retired from this position and became general manager and vice-president of the Great Western Power Company of San Francisco. From this office he resigned in July, 1909.

**BRYANT, DAVID E.** An American jurist, died February 5, 1910. He was born in Larue county, Ky., in 1849, and removed with his parents to Grayson county, Texas, in 1853. He graduated from Trinity College, N. C., in 1871 and in 1873 was admitted to the bar. He practiced law until 1890, when he was appointed United States District Judge of the eastern district of Texas, and he occupied this position until the time of his death.

**BRYCE, JAMES.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**BRYN MAWR COLLEGE.** An institution for the higher education of women at Bryn Mawr, Pa., founded in 1885. In 1910 there were enrolled 425 students. The faculty numbered 60. The library contains about 60,000 volumes. The productive funds of the college amounted to about \$1,200,000, and the income to about \$85,000. The president is Miss M. Carey Thomas, Ph. D., LL.D.

**BUBONIC PLAGUE.** See PLAGUES.

**BUCHLAU INTERVIEW.** See AUSTRIA-HUNGARY, *History*.

**BUCKHAM, J. W.** See LITERATURE, ENGLISH AND AMERICAN, *Philosophy and Religion*.

**BUCKHAM, MATTHEW HENRY.** An American educator, died November 29, 1910. He was born in Hinckley, England, in 1832. He was brought by his father to America in 1834. He graduated from the University of Vermont in 1851. For the two years immediately following he acted as principal of Lenox Academy, Mass. He then acted for a year as tutor of languages at Vermont University. After spending two years abroad he was, in 1859, made professor of Greek at the University of Vermont. This chair he held until he was elected to the presidency of that institution in 1871. At various times he acted also as professor of rhetoric and English literature. He remained president of the University of Vermont until the time of his death. He was widely known as a speaker on religious, social and educational themes. He received the degree of Doctor of Divinity from Dartmouth and Hamilton colleges. He received also the degree of Doctor of Laws from several universities. He was the author of numerous educational papers, etc.

**BUCK'S STOVE AND RANGE COMPANY CASE.** See BOYCOTT.

**BUCKLEY, J. M.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**BUCKWHEAT.** Although considered a profitable crop because it occupies the ground only a short time, can be sown as late as early summer, cleans the ground of weeds and may be plowed under for giving body to a light soil in addition to its culture for the grain, buck-

wheat remains a minor crop. It is more commonly grown in parts of Europe than in this country, but it does not occupy an important rank among crops in general. The United States produced in 1910 17,239,000 bushels of buckwheat on 826,000 acres, as compared with 17,438,000 bushels on 834,000 acres in 1909. The farm value on December 1 for the two years was 65.7 and 69.9 cents and the total value of the crop \$11,321,000 and \$12,188,000 respectively. As usual the leading buckwheat-growing States were New York and Pennsylvania. New York had an acreage of 313,000 and produced 7,199,000 bushels, and Pennsylvania with an acreage of 290,000 produced 5,655,000 bushels. These yields represent about three-fourths of the entire crop of the country. Only 24 States reported growing buckwheat, and among a number of these the acreage ranged from 1000 to 5000. North Carolina and Tennessee were the most southern States in which the crop was grown in 1910. The average yield per acre by States varied from 14 bushels in Wisconsin to 32.5 bushels in Maine.

#### BUDGET EXHIBIT. See NEW YORK.

#### BUILDING. See ARCHITECTURE.

**BULGARIA.** A constitutional monarchy of the Balkan Peninsula. Capital, Sofia.

**AREA AND POPULATION.** Estimated area, 37,199 square miles (including Eastern Rumelia, 12,585). Total population in 1905, 4,035,575; in 1908 (estimated), 4,158,409. In 1908 there were 37,016 marriages, 170,248 births, 939 stillbirths, 101,813 deaths. Sofia had (1905) 82,621 inhabitants; Philippopolis (capital of Eastern Rumelia), 45,707; Varna, 37,417.

**EDUCATION.** Primary education is free and nominally compulsory, with fees (confined to the rich) in higher grades only. Schools (1906-7), 4581 primary, with 8771 teachers and 400,308 pupils; 390 secondary, 1990 and 44,190. There are numerous foreign schools, a few special and technical schools, and a university at Sofia.

**INDUSTRIES.** In 1905 agriculture was the source of maintenance of 3,089,301 of the population (actively engaged, 1,732,612). In 1908, 2,423,000 acres were sown to wheat; yield, 1908, 36,496,000 bushels; 1909, 37,000,000 bushels. Corn (1908), 20,717,000 bushels. Under vines are 89,818 acres; yield, 1908, 63,800,000 gallons; 1909, 26,400,000. Livestock (1905): 2,167,275 cattle, 8,081,816 sheep, 536,616 horses, 124,216 asses, 11,828 mules, 1,370,201 goats, 463,241 swine. Dairy products and silk cocoons are exported. The mines (state owned) yield iron, gold, silver, lead, manganese, and copper. Woolens, cottons, cord, and cigarettes are manufactured.

**COMMERCE.** The total imports and exports are given in leva for three years:

	1907	1908	1909
Imports .....	124,661,000	130,160,000	160,430,000
Exports .....	125,595,000	112,357,000	111,434,000

Details of the trade for 1909 follow, in thousands of leva:

Imps.	1000 leva	Exps.	1000 leva
Textiles .....	49,987	Cereals .....	67,885
Metals, etc. ....	19,284	Animal prods. ....	12,283
Machinery .....	17,055	Textiles .....	9,070
Col. prods. ....	8,018	Animals .....	6,729
Skins, etc. ....	7,597	Perfumes .....	5,372
Timber, " .....	5,637	Skins, etc. ....	4,451
Resins, " .....	5,237	Col. prods. ....	1,693
Chem. prods. ....	5,189	Metals, etc. ....	801

Principal countries of origin and destination: Austria-Hungary, imports, 38,867,000 leva, exports, 11,778,000; Germany, 29,215,000 and 13,523,000; Great Britain, 27,010,000 and 8,279,000; Turkey, 21,084,000 and 36,652,000; France, 11,165,000 and 5,045,000; Belgium, 7,902,000 and 19,341,000; Russia, 5,802,000 and 210,000; Italy, 5,489,000 and 2,732,000; Rumania, 5,049,000 and 621,000. Vessels entered (1909), 14,113, of 3,339,657 tons; cleared, 14,104, of 3,335,380.

**COMMUNICATIONS.** Railways in operation (1910), 1908 kilometres (state owned); under construction, 303. Length of state telegraph lines, 5900 kilometres; wires, 12,390; telephone lines, 1922; wires, 8397; telegraph offices, 295; post-offices, 2070.

**FINANCE.** The unit of value is the lev, worth 19.3 cents. In 1907 the revenue and expenditure amounted to 149,515,231 and 115,658,812 leva respectively. The details of the budget for 1910 are given below in thousands of leva (total revenue, 172,248,400; expenditure, 172,079,096):

Rev.	1000 leva	Expend.	1000 leva
Direct taxes .....	45,200	War .....	39,773
Customs, etc. ....	57,780	Debt .....	38,780
Transport .....	28,495	Pub. Works. ....	29,328
Domains .....	11,442	Instruction .....	21,670
Licenses, etc. ....	8,855	Interior .....	9,660
Imports .....	8,896	Commerce, etc. ....	9,296
Fines .....	1,031	Finance .....	8,622
Other .....	10,549	For. Affairs. ....	6,395
		Justice .....	5,523
Total .....	172,248	Other .....	1,782
		Total .....	172,079

Public debt, January 1, 1910, 478,895,884 leva.

**NAVY.** The navy includes 6 torpedo boats of 100 tons each, 2 of 20; 1 transport; 2 yachts; 1 cruiser of 735 tons. Personnel (1910), about 1000 officers and men.

**ARMY.** The Bulgarian army in 1910 was one of the most efficient on the continent of Europe, being maintained in constant readiness for service. Military service is universal and compulsory between the ages of 18 and 40, and two years must be spent with the colors in the case of the infantry and three for the cavalry and artillery. The men so trained then pass into a reserve, where they are enrolled until their military service is ended. Of the 80,000 candidates available each year, 24,000 in 1910 formed the contingent, and of these 18,000 passed into the infantry, 2000 into the cavalry and 2300 into the artillery. The second contingent of 10,000 men were incorporated into the infantry for six months' service. The active army in 1910 amounted to 57,464 officers and men, of whom 1024 were in the naval service. There are nine divisions with headquarters at Sofia, Philippopolis, Sliven, Schumla, Rustchuk, Vratza, Dubnitza, Eskizagora and Plevna. Each division had two brigades made up of four regiments and generally nine batteries, while six of the divisions had cavalry regiments. The cavalry strength in 1910 was being increased to ten regiments. Each of the infantry regiments has a machine-gun section. The artillery were armed with Schneider-Canet field-guns and Krupp mountain-guns, which were being handled with great skill. The infantry were armed with the Männlicher rifle and carbine. There was also a complete equipment for the technical troops and the transport service. A military

school is maintained at Sofia, where the officers are educated.

**GOVERNMENT.** The executive authority rests with the king (since October 5, 1908), acting through a council of eight ministers. The legislative power is vested in a single chamber, the *Sobranje* (National Assembly), whose members are elected by universal manhood suffrage. Reigning sovereign (1910), Ferdinand, born February 26, 1861; elected, July 7, 1887; married (1), April 20, 1893, Princess Marie Louise of Parma; (2) February 28, 1908, Princess Eleonore of Reuss-Köstritz; proclaimed King of the Bulgarians, October 5, 1908. Heir-apparent, Prince Boris, born January 30, 1894. The ministry in 1910 was composed as follows: President of the Council and Minister for Foreign Affairs, Al. Malinoff; Interior, N. Mushanoff; Finance, A. Liapcheff; Instruction, Vl. Mulloff; Justice, Chr. Slaveikoff; War, General Nicolaieff; Commerce and Agriculture, Dr. T. Kresteff; Public Works, etc., M. Takeff.

**HISTORY.** Prince Ferdinand, it will be remembered, had proclaimed the independence of Bulgaria on October 5, 1908, and assumed the title of King. Then followed the negotiations concerning an indemnity which finally resulted in an agreement, April 19, 1909, wherein all differences were settled and Turkey acknowledged Bulgarian independence. During 1910 there was at times serious friction between Turkey and Bulgaria. Early in the year there were rumors of trouble on the Turkish frontier and even of war preparations, and the situation was watched with anxiety. On March 13 a riot occurred as the result of an elopement of a young Moslem girl with a Bulgar, at Rustchuk, in which 15 persons were killed and many wounded. During the summer there were many outrages in Macedonia, committed chiefly against the Bulgars, and there were bitter complaints of Turkish persecutions. In August a mass-meeting was held at Kostendil to protest against the persecution of the Bulgars by the Turkish authorities. A large number of refugees poured into Sofia during August and in the following month their number had risen to 1400. The Turkish Minister guaranteed them safe conduct to their homes, but only a few ventured to avail themselves of it. The Bulgarian government protested sharply against these outrages and there was a diplomatic correspondence between the two countries. The Bulgarian government demanded amnesty for those who had taken part in the recent revolution, restoration of lands that had been illegally seized and the punishment of officials who had acted illegally. In September the Premier, M. Malinoff, presented his resignation owing to opposition to the government's Macedonian policy, and also to charges of bribery and corruption brought against the Minister of the Interior. He became, however, the Premier of the new Ministry as reorganized. The criticism of the Opposition on the Macedonian question was to the effect that the government had not taken the proper course to avert trouble with Turkey. To this M. Malinoff replied on November 7, saying that the reason the relations with Turkey were not as friendly as they should be was because the Ottoman government had not displayed the same friendly spirit that was shown by the Bulgarian government in its communications. The latter had repeatedly shown its friendly intentions and had taken no

advantage of the difficulties in the way of the new régime. Its spirit had been conciliatory on all controverted questions.

**BULKLEY, JOHN WELLS.** See NECROLOGY.

**BUNDESRATH.** See GERMANY.

**BUREAU OF AMERICAN REPUBLICS.**

See PAN-AMERICAN UNION.

**BUREAU OF ANIMAL INDUSTRY.** See MEAT AND MEAT INSPECTION.

**BUREAU OF MINES, U. S.** See UNITED STATES.

**BUREAU OF MUNICIPAL RESEARCH.**

See MUNICIPAL GOVERNMENT.

**BURGESS, GAVEN D.** An American jurist, died December 17, 1910. He was born in Mason county, Ky., in 1835 and was educated in the common schools of the State. He engaged in the practice of law. From 1874 to 1892 he was judge of the 11th and 12th judicial districts of Missouri. In the latter year he was appointed Associate Justice and acted as Chief Justice in 1901-3. He was a Democrat in politics.

**BURGESS, NEIL.** An American actor, died February 18, 1910. He was born in 1847 and was originally a vaudeville performer. One of his earliest parts was that of Widow Bedott in the play of that name made from the famous Widow Bedott papers. His greatest success, however, was in the play *The County Fair*, which he wrote himself and in which he played the leading part for many years in all parts of the United States.

**BURMA.** See INDIA, BRITISH.

**BURNHAM, DANIEL H.** See ARCHITECTURE.

**BURROWS, DR.** See CANCER.

**BURROWS, SENATOR.** See MICHIGAN.

**BURTON, E. H.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**BURTON, RICHARD.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**BURWELL, WILLIAM TURNBULL.** A rear admiral, retired, of the United States Navy, died January 4, 1910. He was born at Vicksburg, Miss., in 1846, and graduated from the United States Naval Academy in 1866. He rose through successive ranks to that of captain in 1900, and rear admiral in 1906. He served on the Asiatic Station, at the Naval Academy, at the Norfolk Navy Yard and as lighthouse inspector. On his command as captain he was assigned to the Puget Sound Navy Yard. After two years' service there he was placed in command of the battleship *Oregon*, and after a year's command of the *Independence* he returned to the Puget Sound Yard. During his service there the yard was changed from a straggling naval station into a well-equipped yard.

**BUSHMEN.** See ANTHROPOLOGY AND ETHNOLOGY.

**BUSINESS CONDITIONS IN 1910.** See FINANCIAL REVIEW.

**BUSINESS SCHOOLS.** See EDUCATION IN THE UNITED STATES.

**BUSONI, FERUCCIO.** See MUSIC.

**BUTCHER, SAMUEL HENRY.** An English classical scholar and educator, died December 29, 1910. He was born in Dublin in 1850 and was educated at Marlborough School and at Trinity College, Cambridge. He was made a fellow of Trinity College in 1874. Vacating this by marriage in 1876, he was elected without examination to a fellowship at University College, Oxford, where he remained as lecturer un-

til 1882. In that year he became professor of Greek in the University of Edinburgh, remaining until 1903. From 1889 until 1896 he was a member of the Scottish Universities Commission. He was also a member of several other commissions on universities in England and Scotland. In 1906 he became a member of Parliament from Cambridge University. Among his published works are *Prose Translation of the Odyssey* (with Andrew Lang, 1879); *Some Aspects of the Greek Genius* (1891, 1893 and 1904); *Aristotle's Theory of Poetry and the Fine Arts* (1895, 1897 and 1903); and *Harvard Lectures on Greek Subjects* (1904).

**BUTLER, ARTHUR JOHN.** An English scholar, died February 26, 1910. He was born in 1844 and was educated at Eton and Trinity College, Cambridge. From 1870 to 1887 he was employed in the Education Department of the government. From 1887 to 1894 he was engaged in the publishing business. In 1894 he was appointed assistant commissioner to the commission on secondary education. He was well known in England as an Italian scholar, and his edition of the three parts of Dante's *Divine Comedy*, consisting of the text, translation and commentary, was widely used. He was professor of the Italian language and literature in the University of London. Among other works on Dante, he wrote a volume for beginners, entitled *Dante: His Times and His Work*. He translated Scartazzini's *Companion to Dante*. He edited also memoirs of General Marbot and General Thiébauld, and edited the *Calendars of Foreign State Papers from 1577*. He assisted his sister, Mrs. Knight, in writing the *Life and Letters* of his father, W. J. Butler, Dean of Lincoln.

**BUTLER, E. B.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**BUTLER, SIR WILLIAM FRANCIS.** An English soldier and writer, died June 7, 1910. He was born in 1838 and was educated at the Jesuit schools in Dublin. In 1858 he entered the 69th Regiment and served nearly four years in the East. He saw service in Canada in 1870 during the Fenian raid and the Red River expedition, and was awarded a medal for his services. In 1870-71 he was special commissioner to the Indian tribes of the Saskatchewan River. In 1873-4 he served in Africa and was again awarded a medal for his services. In 1875 he served with Sir Garnet Wolseley in Natal. He took part in the Zulu War, 1879-80, and in the Egyptian War in 1882. From 1882-1892 he was aide to Queen Victoria. He took part in the Nile Expedition of 1884-85 and in the latter year commanded mounted troops in the Sudan. In the same year he was made brigadier-general of a frontier field force and in the following year commanded at Wady Halfi. He was promoted to be major-general in 1892, and from 1893 to 1896 commanded the Second Infantry Brigade at Aldershot. He held various commands from that time until 1905. In 1901 he was made lieutenant-general. Among his published works, which had great popularity among English readers, are *The Great Lone Land* (1872), *The Wild Northland* (1873), *Far Out* (1880), *Red Cloud, the Solitary Sioux* (1882), *The Campaign of the Cataracts* (1887), *Charles George Gordon* (1889), *Sir Charles Napier* (1890), *Life of Sir George Pomeroy Colley* (1899) and *From Naboth's Vineyard* (1907).

**BUTTER.** See AGRICULTURE; DAIRYING.

**BUTTRESSED MASONRY CONCRETE DAMS.** See DAMS.

**BYINGTON, AARON HOMER.** See NECROLOGY.

**BYRNES, THOMAS.** An American detective, died May 7, 1910. He was born in New York City in 1842. He learned the trade of gas fitting and followed it until 1861. He enlisted in the Ellsworth Zouaves and went to the war. In 1863 he joined the police force of New York City and rapidly made his way to the top, being made captain in 1870, inspector in 1880, superintendent in 1892, and chief of police in 1895. He early made a reputation as a detective, but it was not until he became a captain that he did the first piece of detective work that made him famous. This was the capture of the Manhattan Savings Bank robbers and the recovery of a large amount of bonds stolen by them. Shortly after this he was transferred to police headquarters and put in charge of the Detective Bureau, which had become disorganized. Byrnes at once detailed a number of his men for special duty in the financial district, with orders to arrest every known criminal below Fulton Street. He soon built up a detective force which became a terror to criminals. His most effective method was in keeping close track of criminals, and in doing this he was accustomed to spend a portion of each day in the company of thieves. As chief of the Detective Bureau he obtained from the legislature certain powers which made him independent even of the police commissioners. As superintendent of police he was constantly in trouble with the police commissioners and with societies organized to look after police methods. Investigations carried on by the Lexow Committee, which disclosed great corruption in the police department, did not smirch Byrnes' personal reputation. As superintendent, he broke up a strong association of precinct wardmen who, he had reason to believe, were the real masters of the precincts. As head of the uniformed force, he broke up the pool rooms in the city, as well as the green-goods business, which was then flourishing. He was thirty-two years in the service of the police department and was probably the most widely known detective of his day. He wrote a book giving the biographies of the best-known criminals of the world, which remains the standard work of this sort.

**CABLE, IMPERIAL.** See CANADA.

**CADMIUM.** See ATOMIC WEIGHTS.

**CÆSIUM.** See ATOMIC WEIGHTS.

**CAISSON.** See FOUNDATIONS.

**CALCIUM.** See ATOMIC WEIGHTS.

**CALCIUM NITRATE.** See FERTILIZERS.

**CALIFORNIA.** One of the States in the Pacific Division of the United States. It has an area of 158,297 square miles, of which 2205 square miles are water. Its capital is Sacramento.

**POPULATION.** The population of the State in 1910 according to the Thirteenth Census was 2,377,549, as compared with 1,485,053 in 1900 and 1,213,398 in 1890. The increase in the decade 1900 to 1910 was 60.1 per cent. The State ranks twelfth in point of population, whereas in 1900 it ranked twenty-first. The population of the chief cities and towns of the State will be found in the tables under UNITED STATES CENSUS. San Francisco, in spite of the dis-

aster of the fire of 1906 which destroyed the greater part of the city, increased in population from 342,782 in 1900 to 416,912 in 1910, an increase of 21.6 per cent. The percentage of increase from 1890 to 1900 was 14.6.

**MINERAL PRODUCTION.** California is first of the States in the importance of its mineral products. As a producer of gold it has been notable since the discovery of gold in 1848. While the yearly production has fallen off from the great totals of the first fifteen or twenty years, it shows a remarkably even rate in the value of the gold produced. The production in 1910, according to the preliminary figures of the Director of the Mint, was 21,146,150 fine ounces, as compared with 20,703,600 fine ounces in 1909. This gives California the first place in the production of gold which it held before it was outranked by Colorado in 1909. With the year 1909 California took first place in the production of petroleum, the increase over the production of the preceding year being more than 8,500,000 barrels. The total production was 54,433,010 barrels as compared with 44,804,737 barrels in 1908. The value of the product of 1909 was \$30,675,267 as compared with a value for the product of 1908 of \$23,433,502. The average price per barrel in 1909 was 56.4 cents against 52.2 cents in 1908. One of the most important events in the oil history of the year was the drilling in September of the Silver Tip well on Section 6 of the Coalinga field. This was at the time the greatest well ever drilled in the State. It was exceeded in 1910, however, by the Lake View gusher. To care for the petroleum production a vast system of pipe lines has been constructed, and of these, four are in operation in the Coalinga field. In March, 1910, the Producers' Transportation Company completed and put into operation an 8-inch pipe line from Coalinga to Port Harford, about 100 miles in length. The total number of wells drilled in 1909 was 638, of which 578 were productive and 60 were dry. The total number of productive wells on January 1, 1909, was 3762. The production of petroleum in California in 1910 aggregated between 65,000,000 and 70,000,000 barrels, according to the estimates made by the Geological Survey at the end of the year.

The coal mining industry of California is not of great importance. The total production in 1909 was 45,836 tons, having a spot value of \$95,042, an increase of 27,081 tons in quantity and \$54,840 in value over the production of 1908. The increase in production was due entirely to the operations of a single company in Monterey county. The remainder of the output came from Amador and Riverside counties. The development of the bituminous coal mines in the State has been held back by an enormous increase in the production of petroleum and by its use by transportation and manufacturing industries. This has practically eliminated coal as a steam raising fuel in the State. The product in 1910 did not exceed that of 1909.

The silver production of the State is considerable and amounted in 1910 to 3,530,246 fine ounces, as compared with a production of 2,304,900 fine ounces in 1909. The production of copper ore in 1910 amounted to 53,568,708 lbs., as compared with 39,643,835 lbs. in 1909. The output of copper in 1910 showed a considerable decrease. This was due to the reduction of the number of operating smelters in consequence of legislation controlling the smelter fumes in

Shasta County. The fumes had been the subject of much public complaint in recent years. A small quantity of lead is produced, amounting in 1909 to 937 tons. The State produces large quantities of mineral water and stone, and the greater portion of the asphalt produced in the United States is derived from California. Other important products are borax, clay products and natural gas. Precious stones are mined more extensively in California than in any other State. The reports of the United States Geological Survey indicate an increase in value in the gold production of the State of over \$400,000 in 1910 over the production of 1909.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909-10 are shown in the following table:

		Acreage	Production	Value
Corn,	1910....	49,000	1,838,000	\$1,470,000
	1909....	50,000	1,740,000	1,583,000
Winter wheat,	1910....	950,000	17,100,000	16,074,000
	1909....	925,000	11,500,000	12,820,000
Oats,	1910....	825,000	8,325,000	4,162,000
	1909....	200,000	6,280,000	4,145,000
Barley,	1910....	1,400,000	43,400,000	23,870,000
	1909....	1,180,000	31,270,000	23,140,000
Rye,	1910....	58,000	986,000	848,000
	1909....	61,000	842,000	876,000
Rice,	1910....	100	3,000	2,000
	1909....	62,000	8,060,000	6,851,300
Potatoes	1910....	60,000	7,800,000	6,006,600
	1909....	700,000	1,281,000	12,298,000
Hay,	1910....	650,000	1,105,000	12,708,000
	1909....			

In the production of barley California ranks second, being surpassed only by Minnesota. The crop in 1910 was considerably in excess of that of 1909, as will be seen in the table above. The value of the crop, however, amounted to about the same. The oat crop in 1910 also surpassed that of 1909, while in this case the value remained about identical. The corn crop of 1910 was slightly in excess of that of 1909, while the crop of winter wheat in 1910 was nearly 6,000,000 bushels more than that of 1909 and its value was nearly \$4,000,000 greater. Nearly all crops show an increase. The production of citrus fruits in the State has steadily increased in the last few years and is now one of the most important of these industries (see **HORTICULTURE**). The State ranks second in the production of beet sugar.

**EDUCATION.** The total enrollment in the schools of the State for the year ending June 30, 1909, the latest year for which statistics are available, was 349,145. Of these 180,481 were boys and 170,664 were girls. In the high schools there were 334,298 and in the kindergarten schools, 5758 pupils. The total number of teachers was 10,769, of whom 1466 were men and 9303 women. The high schools of the State have shown great gain in the last few years, since the provision for State aid for each school.

**FINANCE.** There was in the State treasury on January 30, 1909, \$7,607,863. The total receipts for the fiscal year amounted to \$19,253,754; the total payments during the same period amounted to \$19,660,397, leaving a balance on June 30, 1910, of \$7,201,219. The receipts and payments for the biennium 1908-10 were far in excess of those of the two preceding years. The total bonded indebtedness and warrants outstanding on June 30, 1910, amounted to \$5,184,570. Of this the bonded indebtedness amounted to \$4,881,500.

**CHARITIES AND CORRECTIONS.** The charities and corrections of the State are in the hands of a State Board of Charities, consisting of six members. This board has general supervision and jurisdiction over the charitable and correctional institutions of State, county and municipality. There are two State prisons under the direct management of a board of five prison directors appointed by the Governor. There are five hospitals for the insane in various parts of the State. Over these a general commission in lunacy has supervision. Under this commission is also the Sonoma State Home, an institution for the feeble-minded. An industrial home for the adult blind is managed by a local board of five directors, as is also the institution for the education of the deaf and blind.

The average number of inmates in the State prisons in the fiscal year 1910 was 2844; in the reform schools, 756; in the insane hospitals, 6668; in the Sonoma State Home, 807; in the Home for the Adult Blind, 110; and in the institution for the Deaf and Blind, 251. A new cell house with a capacity of 800 cells was under construction during the year at the San Quentin prison and will be ready for occupancy in the first part of 1911. The reform schools are trade schools in which agriculture plays a prominent part. The State gives unusual attention to the care of its insane. New treatment buildings have been erected at all the State hospitals. These provide for the most modern treatment. The new insane hospital at Agnew will contain twenty-three buildings, each building planned and equipped for the care of certain classes of insane.

**POLITICS AND GOVERNMENT.** There was no session of the legislature in 1910, as the sessions are biennial, and the last was held in 1909. The next session begins January 2, 1911.

**CONVENTIONS AND ELECTIONS.** A new primary law went into effect in 1910 and primaries for the nomination of State officers and candidates for Congress were held on August 16. The campaign both for the primaries and for the election of November was unusually warm. The insurgent element of the Republican party developed great strength in the State, and Hiram Johnson, who was nominated for Governor at the primaries held on August 16, was allied throughout the contest with the insurgents or progressives. The fight in the State, however, was rather on local than on national issues. The anti-railway sentiment, chiefly directed against the alleged control of the State by the Southern Pacific Railroad, took a large part in the nomination of Mr. Johnson, who promised that in the event of his election railway domination over the politics of the State should cease. He was also supported by that wing of the Republican party of the State which was strongly committed to conservation policies. In three of the congressional districts, insurgent candidates were nominated. Mr. William Kent, the donor of the National Redwood Park near San Francisco, received a decided majority in the second district over Congressman Duncan McKinlay, and Judge John D. Works, who had the indorsement of the progressive Republicans, was nominated for United States Senator.

In the Republican Convention, held on September 6, the insurgents were in a large majority. The only function of the convention was to provide a platform and select the State Committee, as the nomi-

nations had already been made by the direct primary system. The insurgents were in full control of the convention, and the platform indorsed President Taft and declared adherence to the Roosevelt policies, already enacted in part under the Taft administration. It condemned the present method of framing the tariff bills and approved the demand for a permanent tariff commission. The national progressive movement was indorsed and the domination of corporations in politics was condemned. The election of United States Senators by direct vote was advocated and conservation was strongly indorsed. One of the interesting planks of the platform was the one which promised to submit to the voters of the State a woman suffrage amendment to the constitution. At the election in November, 1908, Hiram W. Johnson and the entire Republican State ticket were elected by a large majority. All of the Republican nominees for Congress were elected except in the First Congressional District, where John E. Raker, the Democratic candidate, defeated William F. Englebright, the Republican candidate, by 134 votes. The State legislature is overwhelmingly Republican and will undoubtedly elect a progressive Republican to succeed Senator Flint, who announced on February 5, 1910, that owing to personal reasons and also to conditions created by the new State primary law he would not be a candidate for re-election.

**OTHER EVENTS.** Among the measures voted on in the election in November was one providing for the taxation of the State for \$5,000,000 for the Pan-American-Pacific Exposition to be held in 1915. The measure received more than 100,000 votes over the majority necessary to pass it. A vigorous campaign was carried on throughout the year for the selection of San Francisco as the site for this exposition. The amendment gave San Francisco power to amend the city charter and vote a bond issue of \$5,000,000 for the exposition. An exposition fund of more than \$12,000,000 was raised during the year by subscription and otherwise, and in addition to this \$5,000,000 in bonds were voted by San Francisco to bring the total amount assured up to \$17,500,000. This fund insures that the State will not be obliged to ask for government aid, if it is successful in securing the exposition.

**SAN FRANCISCO.** The notorious prize fight between James J. Jeffries and John J. Johnson which was planned to have been held in San Francisco on July 4, was forbidden by Governor Gillett, who on June 15 ordered the Attorney-General to take measures to prevent the fight being held in San Francisco. The action of the Governor was hastened by a communication received from the Chairman of the Foreign Affairs Committee of the House of Representatives warning him that San Francisco need not hope to secure the Panama fair if the fight was held in that city. This action was seconded by despatches from California Congressmen and Senators. The action of Governor Gillett was received with general satisfaction throughout the country.

As a result of the investigation made by the Japanese Consul-General at San Francisco, it was shown that during the last few years the number of Japanese returning to their own country from the United States was greater

than the number of those coming from Japan to the United States. In 1908 the excess of those returning to Japan over those coming to the United States was 1667 and in 1909 the excess was 2625, while for 1910 the proportion appeared to be about the same. The number of Japanese in California was, in round numbers, 40,000.

Although there were no active measures taken in the prosecutions against Patrick Calhoun and others for alleged corruption in securing railway franchises in San Francisco, there were echoes of previous proceedings in the courts during the year. The trial of Mr. Calhoun in 1909 resulted in a disagreement of the jury, ten voting for acquittal and two for conviction. Preparations for a new trial were at once begun, but as a result of the municipal elections held on November 2, 1909, conditions were brought about which appeared to indicate that the sentiment against further trial in these cases was strong. In August, 1910, an attempt was made to have 17 indictments for bribery against Calhoun dismissed, but Judge Lawler refused such action, declaring that he believed Calhoun had bribed a material witness to stay outside the State. He was thereupon accused by Calhoun's lawyers of "dirty politics" and these lawyers, three in number, were by him committed to jail for contempt of court. The report of the District Court of Appeals in November affirmed the findings in the case of Abraham Ruef, whereby he was sentenced to fourteen years in prison for bribery. He was convicted in December, 1910, but remained out of jail on bail for nearly a year. On November 18 the Appellate Court declared that he might enjoy his liberty under \$350,000 bail until his appeal was decided upon by the United States Supreme Court. Former Mayor Schmitz, who was convicted of extortion and was sentenced to seven years' imprisonment in 1908, escaped on a technicality. He has not been prosecuted on any other of the indictments against him and still remains in San Francisco.

The result of the census showed a remarkable gain in San Francisco in the decade 1900-1910, in spite of the disaster of 1906, which destroyed the greater part of the city. The population in 1910 was 416,912 as against 342,782 in 1900, a gain of 21.6 per cent. The city is practically rebuilt.

**STATE OFFICERS:** Governor, H. W. Johnson; Lieutenant-Governor, A. J. Wallace; Secretary of State, F. C. Jordan; Treasurer, W. R. Williams; Comptroller, A. B. Nye; Adjutant-General, V. S. Webb; Attorney-General, J. B. Lauck; Superintendent of Education, William Hyatt; Commissioner of Insurance, E. C. Cooper; Commissioner of Agriculture, J. B. Jeffrey—all Republicans.

**JUDICIARY:** Supreme Court: Chief Justice, W. H. Beatty; Associate Justices, H. Melvin, Lucien Shaw, F. M. Angellotti, M. C. Sloss, F. W. Henshaw, W. G. Lorigan; Clerk, F. L. Caughey—all Republicans.

**STATE LEGISLATURE, 1911.** Republicans, Senate, 31; House, 68; joint ballot, 99. Democrats, Senate, 9; House 12; joint ballot, 21. Republican majority, Senate 22; House, 56; joint ballot, 78.

**CALIFORNIA, UNIVERSITY OF.** An institution of higher learning at Berkeley, California, founded in 1868. The students enrolled in the several departments of the Uni-

versity in 1910-11 numbered 4909, including the summer session. The faculty numbered 297. Among the notable changes in the faculty during the year were the following: Dr. David P. Barrows, formerly Director of Education for the Philippine Islands, was appointed professor of Education; Professor Lucien Foulet, formerly professor of French Literature in Bryn Mawr College, was appointed professor of the French Language and Literature; Dr. Frederick P. Gay, formerly assistant professor in the Harvard Medical School, was made professor of Pathology; Mr. Harold L. Leupp, formerly superintendent of the Library Department and librarian of the Historical Group at the University of Chicago, was appointed assistant librarian; Dr. Rudolph Shevill, formerly assistant professor of Spanish at Yale University, was appointed professor of Spanish. Among the noteworthy benefactions were those of Mrs. Phoebe A. Hearst, for scholarships, anthropology, equipment of the Hearst Memorial Mining Building and of the Greek Theatre, total, \$6000; of the Carnegie Institution for the Lick Observatory, \$1666; of William H. Crocker for the Mount Whitney expedition, \$1080; of the estate of D. O. Mills, for the support of the Southern Hemisphere expedition from the Lick Observatory, \$6000; of Miss Annie M. Alexander for the California Museum of Vertebrate Zoölogy, \$10,081; of M. Theodore Kearney, a bequest of \$1,000,000, this being the valuation of 5400 acres of land near Fresno, including buildings and farm equipment. Among the gifts for endowment received were those of Professor Albert S. Cook, \$1000; the income thereof to be used as an annual prize for a poem, to be known as the Emily Chamberlain Cook prize; of Mrs. Martha C. Lebus, in pursuance of her daughter's will, \$4000 as an endowment for the University Hospital; and of Mrs. James Horburgh, Jr., \$15,000, to be known as the Sheffield-Sanborn Scholarship Fund, for the support of one scholarship in medicine and two in law. There were also received from the estate of Mrs. Jennie D. Thompson of Salt Lake City \$3049 in cash and about \$53,000 in real estate, to be used as a scholarship fund for the maintenance of scholarships for the students from Utah at the University. The productive funds on June 30, 1910, amounted to \$4,462,779 and the income of the college for the year ending at the same date was \$240,731. The president is Benjamin Ide Wheeler.

**CALIFORNIA EARTHQUAKE.** See EARTHQUAKES.

**CALL, WILKINSON.** An American public official, United States Senator from Florida, 1879-1897, died August 25, 1910. He was born at Russellville, Ky., in 1834. While still a youth he removed to Florida and served as adjutant-general in the Confederate Army during the Civil War. He engaged in the practice of law at Jacksonville. In 1865 he was elected Senator by the Florida legislature, but was not seated. In 1872-76 he was presidential elector at large, and in the latter year was a member of the Democratic National Executive Committee and a delegate to the Catholic bishop, died April 6, 1910. He was elected United States Senator in 1879 and was elected for successive terms until 1897.

**CAMBODIA.** A French protectorate in French Indo-China (q. v.). Area about 45,000

sq. miles, including about 7000 sq. miles acquired from Siam by the Franco-Siamese treaty of March 23, 1907. Population (1906), 1,193,534. Capital, Phnom-Penh, with 50,000 inhabitants. Rice, betel, tobacco, indigo, pepper, corn, cinnamon, coffee, and cotton are grown. Salt is mined, and at Khsach-Kandal are factories for the shelling of cotton seeds. Imports for home consumption (1908), £186,203; domestic exports, £44,012. The external trade is principally through Saigon in Cochinchina. The budget (including 525,000 dollars for the civil list) is estimated at 2,588,135 dollars Mexican. Sisowath (since 1904) is the present king; M. Luce (1910), the French resident-superior.

**CAMERON, A. D.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**CAMERON, JOHN.** A Canadian Roman Catholic bishop, died April 6, 1910. He was born in 1826 in the eastern part of Nova Scotia. He was of Presbyterian parentage, but he entered the Roman Catholic Church, and in 1870 was consecrated bishop of the eastern diocese of Nova Scotia. He is said to have been the oldest Roman Catholic bishop in America.

**CAMEROON.** See KAMERUN.

**CAMPAIGN OF 1910.** See UNITED STATES, *Campaign and Election*.

**CAMPBELL, Mrs. PATRICK.** See DRAMA.

**CAMPBELL, T. J.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**CAMPFIRE.** See CHEMISTRY, INDUSTRIAL.

**CANADA, DOMINION OF.** A British possession in North America. Capital, Ottawa.

**AREA AND POPULATION.** The following table shows: (1) area in square miles, inclusive of 125,756 square miles of water area, but exclusive of the territorial seas, the Gulf of St. Lawrence, and the Canadian portion of the Great Lakes; (2) population according to the census of 1901; (3) population according to the official estimate of March 31, 1910:

Provinces	Area	Pop., 1901	Pop., 1910
Pr. Edward Island.	2,184	103,259	
Nova Scotia .....	21,428	459,574	1,060,678
New Brunswick ..	27,985	331,120	
Quebec .....	351,873	1,648,898	2,124,834
Ontario .....	260,862	2,182,947	2,687,861
Manitoba .....	73,732	255,211	496,111
British Columbia ..	312,630	178,657	321,733
Alberta .....	253,540	72,841	321,862
Saskatchewan .....	250,650	91,460	377,590
<b>Territories:</b>			
Keewatin .....	516,571	9,800	
Yukon .....	196,976	27,219	
Mackenzie .....	562,182	5,216	59,050
Ungava .....	354,961	5,113	
Franklin .....	500,000		
Immigration not included above..			10,862
<b>Total .....</b>	<b>3,745,574</b>	<b>5,371,315</b>	<b>7,489,781</b>

The total estimated population, March 31, 1909, was 7,184,000; July 1, 1908, 6,940,504; July 1, 1907, 6,655,904. A special census of the Northwest Provinces taken June 24, 1906, showed a population of 808,863 (against 419,512 in 1901) distributed as follows: Manitoba, 365,688; Alberta, 185,412; Saskatchewan, 257,763. In 1910, the larger municipal populations, including suburbs, were estimated as follows: Montreal, over 500,000; Toronto, over 380,000;

Ottawa, 100,000; Winnipeg, over 130,000; Vancouver, over 110,000.

Immigration for years ending June 30:

Country or origin	1905	1908	1909
United Kingdom .....	65,359	84,351	47,580
Europe (and Iceland)....	37,255	62,860	32,142
United States .....	43,652	56,860	72,349
<b>Total .....</b>	<b>146,266</b>	<b>204,071</b>	<b>152,071</b>

For the year ending March 31, 1910, immigration was 208,794 (59,790 from the United Kingdom, 45,206 from Europe, and 103,798 from the United States). Immigration from the United States is directed principally to the Northwest Provinces. In the fiscal year 1909, Chinese immigrants numbered 2234; 1910, 2106.

**EDUCATION.** Public instruction is controlled by the separate provincial governments. In the provinces primary instruction is free and, except in Quebec and Manitoba, compulsory. In 1901 the inhabitants of five years of age and over numbered 4,728,330, of whom about 3,918,000 were reported as able to read and write, 129,584 to read only, and 680,132 not to read. Educational statistics by provinces follow:

**Alberta.** In 1908, there were 851 schools (including nine separate schools for Roman Catholics), with 1192 teachers and 39,653 pupils. Expenditure, \$2,636,835.

**British Columbia.** For the year ending June 30, 1909, the total enrollment in all public schools was 36,227 (18,659 boys, 17,568 girls), an increase of 2913 over the previous year; average daily attendance, 25,350; percentage of regular attendance, 69.97; teachers, 911, an increase of 95; expenditures, of the provincial government, \$626,074, including \$532,810 for education proper and \$93,264 for new school houses, repairs, furniture, etc. In addition school districts and incorporated cities expended \$921,628, making the total cost of public instruction for the year \$1,547,700. In detail: Rural and assisted schools, 240, with 7468 pupils and 262 teachers; rural municipality schools, 25, with 7024 pupils and 199 teachers; graded city schools, 52, with 19,797 pupils and 380 teachers; high schools, 18, with 1809 pupils and 59 teachers; branches of McGill University College, one in Vancouver with 108 students, the other in Victoria with 21 students, total teachers, 11.

**Manitoba.** In 1907, there were 1943 public schools, with 2480 teachers and 67,144 pupils (including seven high schools, with 3870 pupils). Expenditure, \$2,734,000.

**New Brunswick.** On June 30, 1909, there were 1854 public schools, with an enrollment of 61,937, average attendance 41,438, and 1942 teachers (251 males). Expenditure, \$829,710, of which \$539,002 was voted at school meetings, etc., \$91,235 from county school funds, and the remainder provincial grants. These statistics apply to primary and grammar schools.

**Nova Scotia.** On July 31, 1909, there were 2577 public schools, with an enrollment of 103,970 (average attendance about 70 per cent.) distributed as follows: Common schools, 93,556; high schools, 8124; technical schools, 2145; government night schools, 145. Teachers in common and high schools, 2694, of whom 352 were males. Expenditure, \$1,199,887, of which \$341,058 was contributed by the province.

**Ontario.** Statistics for 1908: 1. Elementary schools, (a) Public schools: Number, 5869; pupils enrolled, 399,670; average daily attendance, 237,933 (59.53 per cent.); teachers (exclusive of kindergarten and night school teachers), 9020 (men, 1760); total expenditure, \$7,182,234. (b) Roman Catholic separate schools: Number, 465; pupils enrolled, 53,551; average attendance, 34,257 (63.97 per cent.); teachers, 1065; total expenditure, \$761,592. (c) Protestant separate schools: Number, 6; pupils enrolled, 422; average attendance, 243. (d) Kindergartens: Number, 156; pupils enrolled, 16,477; average attendance, 6020; teachers, 288. (e) Night schools (1908-9): Number, 10; pupils enrolled, 889 (a decrease of 663); average attendance, 208; teachers, 18. 2. Secondary schools, (a) High schools: Number (including 42 collegiate institutes), 145; pupils enrolled, 31,912; average attendance, 19,862; teachers (Jan., 1909), 795; total expenditures, \$1,385,832. (b) Continuation schools, included in public and separate schools above, had 5317 pupils in attendance. 3. Pupils enrolled in elementary and secondary schools, 502,499 (an increase of 7156); average attendance, 298,280; grand total pupils and students in elementary, secondary, normal, and model schools, 504,573; school population between 5 and 21 years, 596,713; grand total paid for educational purposes in 1908, \$9,329,658.

**Prince Edward Island.** In 1908, there were 476 schools, with 580 teachers and 18,012 pupils. Expenditure, \$175,681.

**Quebec.** Statistics for the year 1908-9: 1. (a) Elementary schools: Number, 5648; pupils enrolled, 216,792; average attendance, 160,096 (73.85 per cent.); teachers, 6770 (men, 169). (b) Model schools: 660; pupils, 98,638; average attendance, 81,038 (82.16 per cent.); teachers, 2906 (men, 750). (c) Academies: 217; pupils, 51,582; average attendance, 44,595 (86.45 per cent.); teachers, 2395 (men, 686). (d) Normal schools: 10; students, 715; average attendance, 710; teachers, 59 (men, 58). (e) Schools annexed to normal schools: 9; pupils, 996; average attendance, 741; teachers, 38 (men, 7). (f) Roman Catholic classical colleges: 18; students, 6397 (males); average attendance, 5872; teachers, 609 (men). (g) Universities: 4; students, 2820 (females, 156); average attendance, 2816; teachers, 380 (men). (h) Schools for the deaf, dumb, and blind: 4; students, 558; average attendance, 556; teachers, 72 (men, 27). (i) Schools of art and design: 10; students, 2400 (males); average attendance, 1420; teachers, 54 (men). (j) Night schools: 71; pupils, 6495 (females, 853); average attendance, 3272; teachers, 158 (men, 140). (k) Total schools: 6651; pupils and students, 387,393 (196,906 male, 190,487 female); average attendance, 301,116 (77.85 per cent.); teachers, 13,586 (2880 men, 10,706 women). 2. Of the elementary schools, 4808, with 180,129 pupils, were Roman Catholic, and 845, with 31,814 pupils, Protestant. Most of the pupils in the model schools and academies are Roman Catholics. Aggregate contributions for education in 1907-8, \$5,148,887; in 1908-9, \$5,517,866 (from taxation, \$2,780,219; government grants, \$837,450).

**Saskatchewan.** In 1908 there were 1410 public elementary schools, with 47,086 pupils enrolled (37.622 in 1907) and an average attendance of 26,081 (55 per cent.). Of the total,

15,200 pupils were in the first grade. Expenditure in 1908, \$2,679,373 (teachers' salaries, \$831,842). There were eight high schools and a normal school.

**AGRICULTURE.** The year 1909 showed the highest development of agricultural interests in the history of the country. The area in crops (exclusive of British Columbia) was 30,065,556 acres, and the value of products computed at local market prices \$532,992,100, as compared with 27,505,663 acres and \$432,534,000 for 1908. The value of field crops by provinces was: Ontario, \$200,398,000; Saskatchewan, \$97,677,500; Quebec, \$90,071,000; Manitoba, \$74,420,500; Nova Scotia, \$22,319,000; Alberta, \$20,741,000; New Brunswick, \$18,150,000; Prince Edward Island, \$9,213,000. In the Northwest Provinces, wheat production increased from 23,457,000 bushels in 1900 to 147,482,000 bushels in 1909; oats from 16,653,681 to 185,439,000; barley from 3,141,121 to 31,358,000. In Ontario, the yield in 1900 and in 1909 was: Winter wheat, 21,879,000 bushels and 14,086,000 bushels respectively; spring wheat, 6,539,900 and 2,176,000; oats, 88,138,974 and 109,192,000; barley, 16,087,862 and 20,952,000. In Quebec, the principal crops were 1,968,203 bushels of wheat, 33,536,677 of oats, and 2,535,597 of barley in 1900, against 1,679,000 wheat, 42,501,000 oats, and 2,604,000 barley in 1909. In the three Maritime Provinces, the wheat yield in 1900 was 1,369,000 bushels, oats, 11,725,000, and barley, 385,760, against 1,321,000 wheat, 16,334,000 oats, and 484,000 barley in 1909. Hay (including clover and forage crops), in Ontario, amounted to 3,792,000 tons in 1900 and 7,068,000 tons in 1909; in Quebec, 2,182,650 and 4,879,000 respectively; in the Maritime Provinces, 1,356,300 and 2,395,000.

Final estimates of the areas planted to field crops in 1908 and 1909 and of the yield and value (in thousands of bushels and dollars respectively) are as follows:

Crops		Acres	1000 bu.	1000 dol.
Wheat,	1909..	7,750,400	166,744	141,320
	1908..	6,610,300	112,434	91,228
Oats,	1909..	9,302,600	353,466	122,390
	1908..	7,941,100	250,377	96,489
Barley,	1909..	1,864,900	55,398	25,434
	1908..	1,745,700	46,762	21,353
Rye,	1909..	91,300	1,715	1,254
	1908..	100,350	1,711	1,262
Peas,	1909..	393,300	8,145	7,222
	1908..	412,900	7,060	5,970
Buckwheat,	1909..	282,440	7,806	4,554
	1908..	291,300	7,153	4,215
Mixed grains,	1909..	582,100	19,391	10,916
	1908..	581,900	19,049	10,140
Flax,	1909..	108,471	2,213	2,761
	1908..	139,300	1,499	1,467
Beans,	1909..	55,970	1,325	1,881
	1908..	60,100	1,245	1,988
Corn for husking,	1909..	352,570	19,258	12,760
	1908..	366,200	22,872	11,837
Potatoes,	1909..	513,508	99,087	36,099
	1908..	503,600	73,790	34,819
Turnips, etc.,	1909..	248,047	107,725	18,198
	1908..	271,443	101,248	17,532
Hay,	1909..	8,210,300	11,877*	132,288
	1908..	8,210,900	11,450*	121,884
Fodder-corn,	1909..	269,650	2,780*	15,116
	1908..	259,770	2,928*	11,732
Sugar-beets,	1909..	10,000	86*	500
	1908..	10,800	109*	578

\* Thousands of tons.

The year 1910, for which final returns are not yet available, showed a decrease in agricultural production; the three most important cereals are estimated in thousands of bushels as follows:

Provinces	Wheat	Oats	Barley
Saskatchewan .....	66,425	55,617	2,818
Manitoba .....	27,001	24,137	7,687
Ontario .....	19,405	128,491	21,368
Alberta .....	6,464	18,210	4,218
Other .....	3,490	74,495	3,297
<b>Total, 1910.....</b>	<b>122,785</b>	<b>300,950</b>	<b>39,388</b>
" 1909.....	166,744	353,466	55,398
" 1908.....	112,434	250,377	46,762

Livestock estimates, June, 1908, and June, 1909: Horses on farms, 2,118,165 and 2,132,489 respectively; milch cows, 2,917,746 and 2,849,306; other horned cattle, 4,629,806 and 4,384,779; sheep, 2,801,404 and 2,705,390; swine, 3,369,858 and 2,922,509. The total value of farm animals is computed at \$531,000,000 for 1908 and \$558,789,000 for 1909.

The foregoing statistics of agriculture do not include figures for British Columbia. Some details not mentioned above, by provinces, are as follows:

**Alberta.** In 1909, the value of field crops was \$20,741,000, against \$14,000,000 in 1908. Total crop area, 1,242,644 acres, against 837,641 in 1908 and 298,433 in 1904; total yield in bushels (threshers' measure), 36,761,493, an increase of 46 per cent. over 1908. Principal yields in 1909: Spring wheat, 6,155,455 bushels; winter wheat, 2,313,344; oats, 24,819,661; barley, 3,310,332; flax, 131,531. In 1909, 9658 horses and 103,013 cattle were exported. The province continues its rapid development.

**British Columbia.** Figures for field crops are not available, but production is small. The annual value of fruit farm products is about \$8,500,000.

**Manitoba.** In 1909, the value of field crops was \$74,420,500, against \$66,000,000 in 1908. Crop area in 1909, 4,777,210 acres (2,642,111 under wheat); yield of grain, 113,504,484 bushels, of which 45,774,708 were wheat, 50,983,056 oats, and 16,416,034 barley; potatoes, 5,450,200 bushels, and other "roots," 2,659,928. Livestock: 189,132 horses, 372,520 cattle, 17,922 sheep, and 155,541 swine.

**New Brunswick.** Aggregate crop value in 1909, \$18,150,000. In 1907, 1,664,941 acres were under crop and 16,290 in orchard and garden.

**Nova Scotia.** Aggregate crop value in 1909, \$22,319,000, against \$22,000,000 in 1908. In 1908, 1,282,050 acres were under crop and 54,041 in orchard and garden. The most valuable crop is hay. The province produces large quantities of excellent apples.

**Ontario.** The value of field crops in 1909 was \$200,398,000, against about \$185,000,000 in 1908. Area under crop, 9,103,793 acres; pasture, 3,180,780; orchards and vineyards, 336,398. Livestock (July 1, 1910.): 724,384 horses, 1,052,796 milch cows, 1,514,332 other cattle, 1,065,101 sheep, and 1,561,042 swine—all these figures showing a slight decrease as compared with 1909.

**Prince Edward Island.** Field crop value in 1909, \$9,213,000, against \$9,408,000 in 1908. Area under crop in 1907, 9,621,683 acres.

**Quebec.** Value of field crops in 1909, \$90,071,000, against about \$80,000,000 in 1908. Area under crop in 1907, 5,250,405 acres; in orchard and garden, 77,416.

**Saskatchewan.** Value of field crops in 1909, \$97,677,500, against about \$37,000,000 in 1908.

This province, which is being rapidly opened up by railways, is experiencing an extraordinary rapid development.

**Homesteads.** Ordinary homestead entries numbered 38,559 in 1908 and 37,061 in 1909. In the two years respectively the entries made in Manitoba numbered 3557 and 2526; in Saskatchewan, 21,004, and 19,354; in Alberta, 13,558, and 14,907; in British Columbia, 440, and 274. The number of pre-emptions was 12,280, in 1908 and 14,613 in 1909; purchased homesteads, 681 and 997; entries for "South African Volunteer Homesteads," 79 and 2624. Homestead acquisition is principally in the Northwestern Provinces—Saskatchewan, Alberta, and Manitoba. See also article AGRICULTURE.

**MINING AND METALS.** A Canadian report, official, but preliminary and subject to slight revision, values the mineral products of the Dominion in 1909 at \$90,378,429, as compared with \$85,927,802, the finally revised total of 1908. Of the total production in 1909, \$45,151,053 is credited to the metals, and \$45,227,376 to non-metallic products. Of the total value in 1909 27 per cent. represented coal, 10,411,955 tons, valued at \$24,431,351 (\$25,194,573 in 1908; about one-half was produced in Nova Scotia). Silver had second place, with an output of 27,878,590 ounces, valued at \$14,358,310 (15.9 per cent.); of this amount 25,737,037 ounces, worth \$12,382,689, was produced at the Cobalt mines in Ontario. The silver output in 1908 was valued at \$11,686,239. The gold output (10.8 per cent.) amounted to \$9,790,000 (against \$9,842,105 in 1908); Yukon was credited with \$3,960,000. The values of other minerals produced in 1908 and 1909 are stated as follows: Nickel, \$3,231,538 and \$9,461,877; copper, \$8,413,876 and \$7,018,213; asbestos (from Quebec), \$2,555,361 and \$2,284,587; lead, \$1,814,221 and \$1,959,488. Petroleum production in 1908 and 1909, 26,081,139 and 17,379,871 gallons; Portland cement, 2,665,289 barrels (\$3,709,063) and 4,010,180 barrels (\$5,266,008). Pig iron produced in 1908, 686,780 tons (108,359 from Canadian and 578,421 from foreign ore); in 1909, 609,431 tons (97,826 Canadian and 511,605 foreign); by importation, the consumption of pig iron in the two years reached 925,441 and 683,212 tons. In 1908 and 1909, the output of steel was 661,940 and 570,588 tons; of steel manufactures, 57,856 and 55,515 tons. Ontario leads in furnace products, its pig iron output in 1909 amounting to 407,013 tons, valued at \$6,301,528. In 1909 gold was discovered near Porcupine Lake and in 1910 near Stewart.

**FISHERIES.** The annual catch has been valued as follows: 1904, \$23,516,439; 1905, \$29,479,562; 1906, \$26,279,485; 1907, \$25,499,349; 1908, \$25,451,094. In the latter two years, the value by provinces was: British Columbia, \$6,122,923 and \$6,465,038 respectively; Manitoba, Alberta, Saskatchewan, and Yukon, \$968,422 and \$861,392; New Brunswick, \$5,300,564 and \$4,754,295; Nova Scotia, \$7,632,330 and \$8,009,856; Ontario, \$1,935,025 and \$2,100,075; Prince Edward Island, \$1,492,695 and \$1,378,621; Quebec, \$2,047,390 and \$1,881,817. In 1908 the lobster catch of Prince Edward Island was valued at \$933,243; cod, \$115,820; all whale products, \$357,500, were credited to British Columbia. Other important details of the catch in 1908 are shown in the following table (values

in thousands of dollars except for total Canada):

	N. S.	N. B.	Que.	Canada
Lobsters .....	2,165	943	210	\$4,200,279
Cod .....	1,945	401	863	3,361,409
Herring .....	627	824	142	2,471,963
Mackerel .....	1,141	340	125	1,336,810
Sardines .....	.....	684	.....	684,808
Salmon .....	100	255	155	4,814,250
Smelts .....	36	381	10	479,253
Clams .....	.....	215	.....	313,331
Pollock .....	262	76	.....	338,013
<hr/>				
	Ont.	N. W.*	B. C.	Canada
Trout .....	577	23	16	\$ 666,322
Whitefish .....	445	370	.....	819,626
Herring .....	374	.....	468	2,471,963
Pickeral .....	301	191	.....	502,076
Salmon .....	.....	15	4,088	4,814,250
Halibut .....	.....	.....	876	1,045,316
Pike .....	166	115	.....	285,187

\* Northwest—Manitoba, Alberta, Saskatchewan, and Yukon.

**MANUFACTURES.** The latest census of manufactures, taken in 1906 for the calendar year 1905, showed 15,796 establishments, with a capital of \$846,585,023; wage earners, 356,034; wages for labor, \$134,375,925; and value of products, \$718,352,603. Of the last figure, Ontario was represented by \$367,850,002 and Quebec by \$219,861,648. By groups the value of products was as follows: Food, \$173,359,431; textiles, \$85,982,979; iron and steel, \$53,125,265; timber and lumber and their re-manufactures, \$112,494,072; leather and its finished products, \$42,132,007; paper and printing, \$33,738,772; liquors and beverages, \$14,394,319; chemicals and allied products, \$15,703,306; clay, glass, and stone products, \$13,986,000; metals and metal products other than steel, \$50,828,968; tobacco and its manufactures, \$15,274,923; vehicles for land transportation, \$37,396,302; vessels for water transportation, \$1,943,195; miscellaneous, \$66,294,869; products of hand trades, \$1,698,195.

**FOREIGN COMMERCE.** Imports of merchandise for home consumption, of total merchandise, of coin and bullion (in thousands of dollars), and total imports are shown in the following table (the first three years named ended June 30, and the last three March 31):

Yrs.	Mdse. Home Consump.	Total Mdse.	Coin and B.	Total Imports
1895 ..	\$100,675,891	\$106,205,062	4,577	\$110,781,682
1900 ..	172,506,878	181,325,075	8,297	189,622,513
1905 ..	251,617,119	256,525,982	10,308	266,834,417
1908 ..	351,879,955	364,237,864	6,549	370,786,525
1909 ..	288,217,515	299,768,166	9,988	309,756,608
1910 ..	369,815,427	385,835,103	6,018	391,852,692

For the same years, exports of domestic merchandise, of total merchandise, of coin and bullion (in thousands of dollars), and total exports were as follows:

Years.	Domest. Mdse.	Total Mdse.	Coin and B.	Total Exports
1895 ..	\$102,828,441	\$109,313,484	4,325	\$113,638,803
1900 ..	168,972,301	183,237,555	8,657	191,894,723
1905 ..	190,854,946	201,472,061	1,845	203,316,872
1908 ..	242,078,452	263,368,952	16,638	280,006,606
1909 ..	242,603,584	259,922,366	1,590	261,512,159
1910 ..	279,247,551	298,763,993	2,595	301,358,529

In the fiscal year 1909, dutiable imports amounted to \$175,014,160; free imports, \$113,203,355; and import duties, \$48,059,792; in 1910, \$227,264,346, \$142,551,081, and \$61,024,239 respectively.

The principal classifications of total imports show the following values for the years ended March 31, 1909, and 1910, respectively: Metals, minerals, and their manufactures, \$54,505,437 and \$78,683,141; coal, coke, etc., \$28,761,207 and \$30,673,331; cotton and its manufactures, \$18,609,542 and \$28,103,286; wool and its manufactures, \$17,195,096 and \$24,680,481; bread-stuffs, \$17,083,506 and \$19,908,765; sugar, molasses, etc., \$13,285,155 and \$14,850,944; wood and its manufactures, \$8,779,242 and \$13,468,713; settlers' effects, \$7,721,599 and \$10,273,428; drugs, chemicals, dyes, etc., \$9,135,222 and \$10,163,357; fruits, \$8,433,576 and \$9,426,811; hides, skins, pelts, \$5,218,108 and \$8,237,014; silk and its manufactures, \$4,630,056 and \$6,017,858; rubber, gutta percha, and their manufactures, \$3,387,941 and \$5,957,130; furs and their manufactures, \$3,670,919 and \$5,754,967; oils, \$4,777,361 and \$5,627,482; flax, hemp, jute, and their manufactures, \$4,004,753 and \$5,368,261; tea, \$5,081,306 and \$5,348,775; paper and its manufactures, \$3,656,279 and \$4,658,714; provisions, \$4,154,621 and \$4,406,363; tobacco and its manufactures, \$4,176,391 and \$4,257,776; leather and its manufactures, \$3,104,011 and \$4,239,156; books, etc., \$3,498,868 and \$4,051,410; spirits and wines, \$3,083,859 and \$4,014,748; carriages, carts, etc., \$2,051,799 and \$3,724,522; electrical apparatus, \$2,128,241 and \$3,690,966; hats, caps, etc., \$2,592,039 and \$3,417,781; glass and its manufactures, \$2,281,666 and \$2,918,129; cordage, twine, and their manufactures, \$1,722,738 and \$2,154,471; gloves, etc., \$1,336,293 and \$1,924,754; earthenware and china, \$1,726,946 and \$1,843,523.

The following table shows by great classes the values of Canadian produce exported and of total exports (that is, Canadian and foreign produce combined) in the years ended March 31, 1909, and 1910 (letters at the left are employed as follows: a, produce of mine; b, produce of fisheries; c, produce of forest; d, animals and their produce; e, agricultural produce; f, manufactures; g, miscellaneous articles; h, total; i, coin and bullion; j, grand total):

	1909		1910	
	Can. prod.	Total	Can. prod.	Total
a ..	\$37,257,699	\$37,563,868	\$40,087,017	\$40,530,843
b ..	13,319,664	13,347,978	15,668,162	15,760,391
c ..	39,667,387	39,893,350	47,517,033	47,688,256
d ..	51,349,646	52,026,710	52,926,515	54,696,630
e ..	71,997,207	82,743,926	90,433,747	102,347,694
f ..	28,957,050	32,954,180	31,494,916	35,953,361
g ..	54,931	1,337,414	125,161	1,786,818
h ..	242,603,584	259,922,366	279,247,551	298,763,993
i ..	2	1,589,793	.....	2,594,536
j ..	242,603,586	261,512,159	279,247,551	301,358,529

Grain is the leading export, details of which in thousands of bushels (b) and thousands of dollars (d) are shown in the following table, for years ended March 31:

Years	Wheat	Oats	Barley	All grain
1900—b	16,845	6,929	2,156	30,055
d	11,995	2,143	1,010	18,057
1905—b	14,700	2,367	1,041	19,748
d	12,387	862	515	15,125
1908—b	43,655	7,123	1,990	53,949
d	40,005	3,172	1,223	45,563
1909—b	49,137	5,256	2,959	59,205
d	48,148	2,176	1,745	53,783
1910—b	49,741	3,402	2,045	56,867
d	52,609	1,567	1,108	56,751

The foregoing figures are for domestic exports (that is, the products of Canada). In the fiscal year 1910, the total grain export was \$68,404,421 (Canadian, \$56,750,571), of which wheat was \$60,431,253 (Canadian, \$52,609,351); Canadian wheat flour, \$14,859,854 (\$7,991,413 in 1909). Other important domestic exports, in the fiscal years 1909 and 1910 respectively, were: Lumber, \$32,379,809 and \$38,490,476; cheese, \$20,384,666 and \$21,607,692; silver, \$13,284,084 and \$15,009,937; living animals, \$11,798,028 and \$12,107,971; meats, \$9,984,425 and \$8,013,680; gold-bearing quartz, dust, nuggets, etc., \$7,293,420 and \$6,016,126; copper, \$6,406,528 and \$6,023,925; wood manufactures, \$5,081,221 and \$6,094,844 (wood pulp, \$4,306,929 and \$5,204,579); wood for pulp, \$4,356,391 and \$6,076,628; hides and skins other than furs, \$4,029,676 and \$5,430,591; paper, \$3,469,713 and \$3,156,096; codfish, \$3,348,149 and \$3,619,853; lobsters, \$3,218,466 and \$3,149,497; salmon, \$3,002,311 and \$4,887,632; furs (including marine), \$2,617,716 and \$3,784,376; iron and steel and their manufactures, \$2,479,284 and \$2,475,982; leather and its manufactures, \$2,369,577 and \$1,379,581; alcoholic liquors, \$1,127,482 and \$1,168,952; flaxseed, \$855,908 and \$3,642,476.

In the fiscal years 1909 and 1910, the value of merchandise imported for home consumption and of domestic merchandise exported are shown by countries as follows, in thousands of dollars:

	Imports from		Exports to	
	1909	1910	1909	1910
United States.....	170,056	217,502	85,335	104,200
Germany.....	6,050	7,935	1,456	2,066
Great Britain.....	70,682	95,336	126,385	139,483
France.....	8,197	10,110	2,342	2,601
British W. I.....	7,544	5,778	2,746	3,535
British E. I.....	3,072	3,626	329	58
Belgium.....	1,802	3,240	2,699	1,840
British Guiana.....	2,333	2,980	502	585
Argentina.....	1,637	2,182	1,868	2,868
Japan.....	1,984	2,180	756	659
Netherlands.....	1,273	2,010	913	1,377
Newfoundland.....	1,638	1,468	3,392	3,807
Australia.....	641	1,198	3,746	4,448
British Africa.....	412	1,042	1,677	2,349
Other.....	10,794	13,329	8,457	9,372
Total.....	288,218	369,815	242,604	279,248

**SHIPPING.** In the fiscal year 1910, there entered 15,008 sea-going vessels, of 10,950,600 tons (15,140 of 10,264,187 tons in 1909) and cleared 14,776, of 9,853,713 tons. British and Canadian vessels entered, 8232, of 7,834,716 tons, and cleared, 8405, of 6,702,354 tons; United States entered, 5716, of 1,711,708 tons, and cleared, 5251, of 1,734,540 tons. Of the total entrances, 8209 vessels, of 9,944,430 tons, were steam, and 6799, of 1,006,170 tons sail; clearance, 7640, of 8,826,936 tons steam, and 7136, of 1,026,777 tons sail. Of the tonnage entered in the trade on rivers and lakes between Canada and the United States, 6,602,352 was Canadian, and 5,482,007 American—total 12,084,359; cleared, 5,579,821 Canadian, and 6,099,498 American—total, 11,679,319.

**COMMUNICATIONS.** Total single-track railway mileage in operation June 30, 1908, 22,966; June 30, 1909, 24,104. For the year ending on the latter date, gross earnings, \$145,056,336; working expenses, \$104,600,084; capital, \$1,308,481,416. Mileage in operation by provinces in 1908 and 1909 respectively: Alberta, 1323 and 1322; British Columbia, 1733 and 1796; Manitoba, 3111 and 3205; New

Brunswick, 1509 and 1547; Nova Scotia, 1344 and 1351; Ontario, 7932 and 8229; Prince Edward Island, 268 and 269; Quebec, 3574 and 3663; Saskatchewan, 856 and 1006; Yukon, 59 and 59. Electric railways, June 30, 1909, aggregated 989 miles, with \$91,604,989 capital, \$14,811,726 earnings, and \$3,885,235 working expenses. Canada has an extensive system of canal, river, and lake navigation. In 1908 there were 33,222 miles of telegraph line (7270 government), with 123,080 miles of wire and 2759 offices. Post-offices, March 31, 1909 and 1910, 11,823 and 12,479, respectively.

**FINANCE.** In the year ending March 31, 1909, the total revenue was \$85,549,580; total expenditure, \$133,441,524, including sinking-fund deposits of \$1,922,525; net excess of expenditure, \$45,969,419. Figures for the following fiscal year: Consolidated Fund receipts, \$101,503,711; other receipts, \$112,765; total receipts, \$101,616,476;—expenditure chargeable to Consolidated Fund, \$79,411,747; expenditure chargeable to "Capital," \$29,756,353; railway subsidies, \$2,048,097; other charges, \$4,179,576; total expenditure, \$115,395,774, including sinking-fund deposits of \$1,441,031; net excess of expenditure, \$12,338,267. Principal sources of Consolidated Fund receipts in the fiscal year 1910: Customs, \$60,156,134; excise, \$15,253,353; railways, \$9,647,551; post-offices, \$7,958,548; Dominion lands, \$2,886,000; interest on investments, \$2,867,465;—leading items of expenditure chargeable to Consolidated Fund: Interest on public debt, \$13,098,161; railways and canals, \$11,021,013; subsidies to provinces, \$9,361,388; public works, \$7,837,709; post-office, \$7,215,337; militia, \$4,679,956; civil government, \$4,268,390. Expenditure chargeable to Capital: Railways and canals, \$23,156,620; public works, \$4,514,606; militia, \$1,299,970; Dominion lands, \$785,158. Net public debt at end of fiscal years: 1908, \$277,960,860; 1909, \$323,930,279; 1910, \$336,268,546. Sinking fund on last two dates, \$38,515,547 and \$14,782,613.

**BANKS.** On June 30, 1910, the Canadian chartered banks had total assets \$1,230,525,305, including: Specie, \$27,586,533; Dominion notes, \$74,349,645; loans in Canada, \$710,744,878; other, \$417,844,249;—total liabilities, \$1,040,324,464, including paid up capital, \$98,728,342; reserve fund \$79,370,321; notes in circulation, \$79,781,631; deposits, \$797,849,593; other, \$162,693,240. On the same date the 1133 post-office savings banks had 148,893 open accounts, with deposits and interest \$43,586,357 (average account, \$292.73); the 18 government savings banks had deposits and interest \$14,677,872; total, \$58,264,230. Circulation of Dominion notes, March 31, 1910, \$87,134,069.

**ARMY.** By the Militia Act of 1904 every Canadian between the ages of 18 and 60 is liable to military service. The enthusiasm so markedly manifested in 1909 resulted in forming new volunteer organizations. These consist of a permanent force which averages very close to the regular army and consists of 5000 men. This was to be employed as a means of instruction for the various volunteer and militia organizations. The active militia in addition consisted of mounted troops on a peace basis aggregating 3100 of all ranks, which in time of war would be increased to 8000. The field artillery as organized were about 2000 on a peace basis and would be increased

to 3470 for war service. The total strength of the active militia on a peace basis was estimated at about 3000 officers and 41,000 men, rank and file and 7600 horses; on a war basis this force would amount to 5000 officers, 100,000 rank and file and 17,500 horses. The Dominion included many rifle clubs, which have some 14,000 active members. An efficient Military College at Kingston is also maintained. During the year the question of developing this institution into a staff college and associating with it colleges in other parts of the Dominion was being considered. Inspection of the military conditions of the Dominion was made by Sir John French after a visit to the various fortifications, camps, and military scenes, and he reported that in many respects military establishments fell short of the requirements. The plans adopted were not believed to facilitate a rapid mobilization of forces and the coöperation of the various arms of the service. The cadet army and militia, however, contained soldiers of a high grade of intelligence and individual strength, and much military enthusiasm was being manifested.

**NAVY.** The naval defense of Canada has been assumed by the Imperial Government, but the passage of the Naval Service Act (1 George V., c 43) on Apr. 20, 1910, marked the introduction of a new policy by creating a new branch of the Department of Marine and Fisheries, having charge of the Naval Service. (See below, paragraphs on *History*.) On April 30, the Canadian Parliament voted \$3,000,000 for the construction and support of the new navy, the maintenance of dockyards at Esquimaux and Halifax, and the establishment and maintenance of training schools. Later in the year Canada bought and received two British protected cruisers, the *Rainbow* and *Niobe*, of 3600 and 11,000 tons each, which are to be used as training ships.

**GOVERNMENT.** The executive authority is vested in the British sovereign acting through a governor-general, who is assisted by a cabinet of 14 members. The legislative power devolves upon a parliament of two houses, the Senate (87 members, nominated for life by the Governor-General) and the House of Commons (214 members, elected by popular vote). The Governor-General in 1910 was Sir Albert Henry George, Earl Grey (appointed Sept. 26, 1904). Cabinet ministers in 1910, with date of appointment: Prime Minister, Sir Wilfrid Laurier (1896); Secretary of State, Charles Murphy (1908); Postmaster-General, Rodolphe Lemieux (1906); Minister of Trade and Commerce, Sir Richard J. Cartwright (1896); Minister of Justice, Allen B. Aylesworth (1906); Minister of Marine and Fisheries, and of the Naval Service, Louis P. Brodeur (1906); Militia and Defence, Sir Frederick W. Borden (1896); Agriculture, Sydney Arthur Fisher (1896); Public Works, William Pugsley (1907); Finance, William S. Fielding (1896); Railways and Canals, George P. Graham (1907); Interior, Frank Oliver (1905); Customs, William Paterson (1897); Inland Revenue, William Templeman (1906); Labor, William Lyon Mackenzie King (1909).

Each province has an elected legislature and an executive (lieutenant-governor) appointed by the Governor-General and assisted by a responsible ministry. See articles on the several provinces.

For information concerning Charities, see **CHARITY**.

#### HISTORY

**NAVAL DEFENSE.** On January 12 the government introduced the Naval Service bill which provided for a permanent naval force with reserves and with volunteers, to be under the control of the Department of Marine and Fisheries, but constituting a separate branch of that department under a Director of the Naval Service and a Naval Board. If the necessity arose, the Government in Council might place the Canadian naval service, or any part thereof, at the disposal of the Imperial Government for general service in the Royal Navy. The bill contemplated a naval college corresponding to the military college at Kingston. The building programme included the construction of four vessels of the *Bristol* type, one of the *Boadicea* type and six destroyers, at an estimated cost of £2,338,000, an increase of 22 per cent. on account of the provision that the ships should be built in Canada. The construction was to be begun as soon as possible. The vessels were to be distributed between the Atlantic and Pacific coasts. The leading argument against the bill was that it tended to foster a spirit of independence that would lead finally to separation from Great Britain. Mr. Borden, the Opposition leader, speaking on the measure in January, declared its provisions utterly inadequate, saying that although a crisis might occur within five years, and very probably within three, the navy would not be effective in less than 15 or 20 years. He referred to the alarm in Great Britain over the German peril in 1909 and to the threatening statement in the German Navy bill of 1900 to the effect that Germany's battle fleet must be so strong that even the strongest naval power would find its position doubtful if it ever undertook a war with her. The Liberals supported the measure, but the Conservatives were divided on the question, some being averse to any action at all, and others favoring direct contribution to the British Navy. Early in February, on the occasion of the second reading of the bill, Sir Wilfrid Laurier declared that the Government would insist on it. He said the eleven vessels would be built in Canada and that the Government would ask for tenders for the shipbuilding plant. One year would be required for these preliminaries and the building of the vessels would take four years. Mr. Borden condemned the bill as a departure from the plans of the admiralty and as a dangerous measure, in that it allowed the Government to withhold ships from the empire in case of war. It contained no assurance that the new navy would be of any use either to the empire or to Canada, and in place of it he urged a free contribution from the Canadian people of an amount sufficient for the construction of two *Dreadnoughts*, to be expended at the discretion of the admiralty. In the course of the debate the Government condemned the direct contribution as an offer of tribute, and argued for strict autonomy. Early in March, Mr. Borden's amendment, providing for direct free contributions, was defeated by a vote of 129 to 74. The Conservative motion for a plebiscite on the question and the final motion to kill the bill altogether were also lost. The bill passed the House on March 10 by a party majority of 41.

**LEGISLATION.** The chief work of Parliament,

which was prorogued on May 4, was the passage of the Naval Defense bill as outlined above and of an anti-trust measure, known as the Combines Investigation Act. The latter was a radical measure brought in by the Minister of Labor, Mr. Mackenzie King, which provided for the appointment of a board of three members, one to be chosen by the plaintiff, one by the defendant, and the third, either by joint agreement or by a judge. Its purpose was to investigate the charges of monopoly and it had complete judicial powers. If the board found that a monopoly existed, two remedies might be applied, namely, withdrawal of tariff protection from the products of the monopoly or the imposition of a fine of \$1000 a day so long as the abuse continued. The Government might revoke any patent that was employed in restraint of trade or for the raising of prices. Among other acts of general public scope may be mentioned an immigration measure repealing previous laws, introducing stringent provisions for the exclusion of undesirable aliens and making other important changes in the legislation which it superseded; a law making the drivers of motor vehicles liable to criminal suits for reckless driving, etc.; the reduction of the import duties on 13 classes of commodities in accordance with the understanding with the United States Government (see below paragraph on *Tariff Affairs*); an important insurance act repealing previous insurance laws and prescribing the status of insurance companies in Canada; railway legislation granting certain subsidies in aid of railway building, incorporating the Canadian Northern Alberta Railway Company and providing for its construction under government guaranties, and providing for the leasing of roads connected with the government Intercolonial lines.

**TARIFF AFFAIRS.** An agreement with Germany respecting the tariff was regarded as an important step in bringing to an end the commercial war between these two countries, which had been going on since 1903. By this agreement Canada suspended the surtax on German imports and Germany applied her conventional tariff to many classes of Canadian imports. The new provision of the amendment was to go into effect on March 1. The Canadian surtax hereby repealed amounted to 33½ per cent. and had been imposed since 1903. Many Canadian writers expressed approval of the arrangements so far as Canada was concerned, inasmuch as the list of Canadian imports admitted under the new agreement comprised practically all for which Canada could expect to find a German market. For a discussion of the question of applying the maximum provision of the Payne tariff to Canada, see the article **TARIFF**.

In the spring the tariff situation as regards the United States became so acute as to cause a fear of a tariff war between the two governments. Canada refused concessions and was unwilling to admit that her tariff discriminated unduly against the United States, pointing out that while the average United States duty on Canadian imports was 42 per cent., the Canadian duty on United States imports was but 23 per cent., and declaring that the restrictions on the exports of pulp wood from the Provinces was outside of the jurisdiction of the Dominion Government. The tariff situation in Canada was used in Great Britain to enforce the arguments for tariff reform. By the commercial treaty

with France, whose ratifications were exchanged in February, many classes of French exports received the benefit of the Canadian intermediate tariff and some of them were admitted under lower duties even than the preferential duties accorded to British goods under the preference measure passed by the first Laurier Ministry. The removal of the Canadian surtax on German imports paved the way for a commercial treaty with that country similar to the treaty with France. Canada had imposed that surtax as a retaliation for a like step on the part of Germany, which tried to punish Canada for British preference. The provision of the American Payne tariff was aimed at those countries which seemed to discriminate against the United States, and it levied a penal tariff of 25 per cent. above the normal rate on such countries. For some time it seemed to be a question whether the United States Government would take the same view of British preference as the German Government had done, but the United States was not disposed to regard British preference as discrimination against her, viewing the Empire as a unit. The treaty with France, however, was viewed by the United States as perhaps involving that point. Trade with the United States was very important. Canada bought from that country twice as much as the United States from her, and controlled the raw material of important American industries. In the West Indies the Canadian preference for British grown sugar had revived the flagging sugar industry. In March a conference was held between Mr. Fielding, the Canadian Minister of Finance, and President Taft, at Albany. Finally a tariff agreement with the United States was reached by which the minimum tariff under the Payne Act was conceded to Canada, and Canada on her part reduced the duties on thirteen classes of goods. It was adopted by the House on May 4.

The tariff discussion was active throughout the year. In a speech delivered in July Sir Wilfrid Laurier declared in favor of a gradual tariff reduction, which should be preceded by a tariff commission like that of 1907. The trade policy of England, was, he thought, the ideal at which all countries should aim, but in the case of Canada he believed it would not be attained for two generations. In a speech at Nelson he declared the Government's position in the following words: "We are asked on every hand by different interests for free trade and protection. It will be our aim to evolve a tariff calculated to benefit the whole country. The cardinal feature and outstanding principle of the tariff is the British preference, and so long as we stay in office it will remain. It is not the policy of the Canadian Government to ask Great Britain to change her fiscal policy by an iota. We make our own interests, so with Great Britain. The loyalty of Canada to the British Empire is not dependent on any tariff relations."

Plans were made in October for the organization of a delegation of Western farmers with whom were to be united the farmers of the organization in the Eastern Provinces to petition the Government that farm implements be placed on the free list and also that natural products be made the subject of reciprocity with the United States. Further demands were, the increase of British preference to 50 per cent., a general reduction of the tariff, the immediate

construction of the Hudson Bay railway, and Government ownership of terminal elevators. See AGRICULTURE.

**RECIPROCITY.** At the end of March, Sir Wilfrid Laurier announced the Government's intention to discuss reciprocity with the United States and later the Government accepted President Taft's invitation to a reciprocity treaty conference. An official trade conference on the subject was opened between representatives of the United States and the Canadian Government early in November and its sessions were held secretly. Meanwhile, in certain quarters it was argued that Canadian tariff was not responsible for the unsatisfactory trade relations with the United States, that there was no possibility of reciprocity except in coal and that even that was doubtful and that, moreover, reciprocity would impair the chances of British preference and lose Canadians their advantage in the British market. It was feared that Canadian and British capital invested in railways and ocean steamships might be endangered by the diversion of the cattle and grain traffic to American transportation companies. Sir Wilfrid Laurier, however, in a speech at Montreal in October defending the Government's course in entering into reciprocity negotiations with the United States, said that it was the first duty of the Government to work for the prosperity of the people and that it was possible to make a treaty with the United States which should confer equal benefits upon both countries. The negotiations with the United States were pending at the close of the year. See **TARIFF**.

**PREFERENCE.** The Royal Commission on the trade relations between Canada and the West Indies, which had carried on its investigations in 1909, published its report on September 26. It offered recommendations on the subject of Canadian preference on sugar, policy of reciprocity, steamship communications, telegraphs, and the work of the Department of Agriculture in the West Indies. As to the preference on sugar, the Commission believed that the policy of the Canadian Government had helped to avert the abandonment of sugar cultivation and it declared that the preferential policy was of great benefit to the West Indian producers and absolutely essential to the sugar industry in many of the islands. To maintain Canadian preference, however, it would be necessary to make reciprocal concessions. As to Jamaica, the inhabitants felt that they formed a separate unit in the empire and besides had comparatively slight interest in preference owing to the relative decline in sugar production during the last fifteen years and the predominance of the fruit growing industry. The Commission therefore held that Jamaica should be excepted from the general policy toward the West Indian colonies, although the way should be left open to her adherence if she so desired. The Commission reported that closer relations with Canada were generally desired throughout the West Indies, but that this was tempered in some of the islands by the fear that the United States might regard any preference for Canada as undue discrimination. The Commission, however, argued that since the United States did not treat Canadian preferential tariff as an undue discrimination it would not be likely to regard the granting of preference by the West Indies to any other part of the British dominions as having that character.

**INDUSTRIAL AFFAIRS.** In June the Conciliation Board investigated the questions which had arisen between the Canadian Pacific and Grand Trunk railways and their employees, and handed down a rule which generally favored the railroads. The Canadian Pacific, in order to avoid a strike, granted the men somewhat more favorable terms than those accorded by the award. On the Grand Trunk Railway, however, the strike which had been long threatened, broke out on July 18 when 3850 men left work on account of the refusal of their demands that their wages be standardized and freight rates be made the same as those on the eastern railroads. Immediately on the declaration of the strike, the company closed its shops. It was estimated that over 5000 men were thrown out of work. Freight traffic came to a standstill but the passenger service was continued. The strike ended on August 2, with a compromise, proposed by Mr. Mackenzie King, Minister of Labor, as mediator, by which the company accepted the decision of the Conciliation Board and thus granted an immediate increase in wages. (See **STRIKES AND LOCKOUTS, Canada**.) Many of the men were not taken back by the company, those who had taken their places being retained, and it was estimated that 1000 of the old employees were still out.

At the annual meeting of the Trades and Labor Congress at Fort William, action was taken toward the establishment of a Labor party, which should be able to take a vigorous part in the next general election. Sweeping reductions were ordered by the Dominion Railway Commissioners in September in the freight rates in the Yukon and White Pass Railway. Direct connection was arranged in June by the Grand Trunk Railway system with the Great Lakes and Halifax and St. John, thus giving a third route to the Atlantic seaboard for wheat and other exports. The Georgian Bay canal project was known to be given up for the present at the beginning of the year, but in March Sir Wilfrid Laurier spoke strongly for it and expressed his hope that work on it might soon be begun.

The proposal for an "All Red Route," made by Sir Wilfrid Laurier at the Imperial Conference in 1907, was still under consideration. It aimed at an improved through fast railway and steamship service between Great Britain and Australia and New Zealand via Canada. A committee appointed by the Imperial Government took the testimony of experts on the subject, but down to the close of 1910 no satisfactory plan had been devised.

**IMPERIAL CABLE.** The Pacific Cable Board on July 1 secured from the Canadian Pacific Railway Company the lease of a wire from the British Columbia terminus to Montreal, thus opening communication between Montreal, New South Wales and New Zealand. This reduced the distance to Great Britain of the cable controlled by the Board by 3000 miles. The management of the telegraphic communication between Canada and Montreal was thenceforth under the complete control of the British, Canadian, Australian and New Zealand Governments with power to fix charges in such a way as to promote trade between the dominions.

**IMMIGRATION.** A new regulation was issued by the Canadian Immigration Office on April 20 amending the rules forbidding the immigration into Canada of persons financially aided

by immigration societies, charity organizations or public funds, without the consent of the Immigration Office. Thenceforth such consent would be given only to persons suited for and willing and able to obtain farm work in Canada. Thus it closed the door against the skilled workman if he had accepted any financial assistance of the sort indicated. During the fiscal year 1909-10 the influx of immigrants into the Canadian West was remarkably large, 103,000 having come from the United States alone. It was expected that the number would reach 125,000 during the year 1910. According to the United States Bureau of Immigration, from March 31, 1909 to March 1, 1910, no less than \$95,371,000 was taken by Americans into Canada.

**OTHER EVENTS.** One of the worst accidents in Canadian railway history occurred on January 21, at Spanish River, 48 miles west of Sudbury, where the dining car of the "Soo Express" from Minneapolis fell into the stream and the second class car struck the stone abutment of the bridge. Thirty-seven bodies had been found by January 25th. A disastrous snowslide in Rogers Pass, Rocky Mountains, occurred early in March and the deaths were estimated at 62, of whom 37 were Japanese. Sir Wilfrid Laurier spent the months of July and August travelling throughout the country and making speeches on the public questions of the day. He returned from his western trip on September 7, having covered a distance of 9500 miles. The accounts for the fiscal year ending March 31, 1910, were made up early in June. They showed a great increase in the revenue, which came to about \$101,000,000. (See paragraph FINANCE above.) In September the Premiers of the Maritime Provinces, Nova Scotia, New Brunswick and Prince Edward Island, decided to petition Parliament for an amendment to the British North America Act, designed to prevent the relative decrease in the representation of these provinces, resulting from the increase of the western population, owing to the westward movement of Canadians and to immigration. In October the Conservation Congress met at Ottawa. An investigation was made in June into the condition of the Government Printing Bureau, with the result that four employees and one higher official were dismissed. Another afterwards was suspended and still another committed suicide. The Eucharistic Congress of the Catholic Church was held in September. See ROMAN CATHOLIC CHURCH.

For geographical explorations in Canada in 1910 see EXPLORATION.

**CANADIAN FARMERS' ORGANIZATIONS.** See CANADA.

**CANADIAN-GERMAN TARIFF AGREEMENT.** See CANADA.

**CANADIAN NAVAL DEFENSE BILL.** See CANADA.

**CANADIAN NORTHERN ALBERTA RAILWAY COMPANY.** See CANADA.

**CANADIAN PACIFIC RAILWAY.** See CANADA.

**CANADIAN PARLIAMENT.** See CANADA.

**CANADIAN RECIPROCITY.** See TARIFF; CANADA.

**CANALS.** In comparison with the great Panama Canal (q. v.) all other work of this kind sinks into insignificance. Furthermore in 1910 there were very few important artificial

waterways under construction. Progress was being made on the New York State Barge Canal and a substantial beginning with the excavation for the Cape Cod Canal was accomplished, while the widening of the Kiel Canal in Germany was the most important European work. These are described below.

**PROPOSED INLAND WATERWAY.** The United States War Department through its corps of engineers was engaged during the year upon the preparation of plans and estimates for that section of the proposed internal waterway that will reach from New York to Philadelphia and be a part of the Atlantic coast canal. Eventually this will extend from Boston to Key West and thence to New Orleans by the Gulf of Mexico. On its engineering side such a canal presents few if any difficulties, and the question at issue was largely whether commercial and other interests would be proportionately benefited by its construction. Colonel Black, U. S. A., in charge of the preliminary plans believed that such a canal would develop the pottery, glass, brick and other industries in New Jersey and would tend to lower rates between manufacturing centres, along the Delaware River and in the vicinity of New York. The total estimate for the cost of the canal was \$38,725,000. It would require but 30 miles of excavation across the State of New Jersey and a dredging of the channel for 25 miles in the Delaware River. The question was one largely of policy in connection with some consistent plan for the construction and improvement of inland waterways throughout the United States. Such waterways in Europe have been particularly successful but it is problematic whether conditions are such in the United States as to warrant their construction.

**NEW YORK BARGE CANAL.** State Engineer and Surveyor Frank M. Williams at the end of the year 1910 reported in reference to the work on the New York Barge Canal that, taking into account the contracts awarded December 20 and 21, the work of providing a channel 12 feet in depth, with locks, dams and other structures necessary to provide for navigation, had been placed under contract for the entire Champlain and Oswego canals and the entire Erie Canal, excepting the two-mile section at Medina and a few hundred feet of excavation on the Troy and Tonawanda ends of the canal to connect with Government waters. There remained to be placed under contract the work of building incidental structures like bridges, guard-gates, electrical appliances, etc.

The entire work thus contracted for, amounting to \$73,036,000, was estimated in 1903, when the \$101,000,000 appropriation was passed, to cost \$75,906,000, showing a saving under the 1903 estimate of \$2,870,000. This fact it was believed went far toward verifying the opinion that the entire canal could be completed within the original estimate of \$101,000,000.

During the two years 1909 and 1910 work was placed under contract to the amount of \$37,296,000, covering 210 miles of canal, as against work amounting to \$25,740,000, covering 194 miles of canal, placed under contract by preceding administrations. During the same period construction work has been completed to the amount of \$17,300,000, as against work amounting to \$8,700,000 completed under preceding administrations.

In addition to the work done under the

\$101,000,000 estimate the State Engineer's department during the two years made a preliminary estimate of cost for the building of the Cayuga and Seneca Canal, and prepared plans for two contracts covering a large portion of this work. Those contracts were let towards the close of the year for \$1,306,177.

**SIPHON SPILLWAY, NEW YORK BARGE CANAL.** At certain places on the New York State Barge Canal, spillways are provided to allow excess water to run off in times of freshet or after heavy rains, and especially in locks where a constant water level is of importance. On the Champlain Division of this canal, siphon spillways are now being built, one at Whitehall, one at Lock No. 9, and one at Fort Edward. The siphon arrangement discharges the excess water more rapidly than a spillway, unless the latter be made of great length; and in the three localities above cited, long spillways were to be avoided. The concrete wall or abutment of the canal has an opening below the low water line from which a channel or conduit leads up into the wall to a point near the top, then turns down and terminates in an aperture in the outer wall face at a lower level than that on the inner face. When water rises in the canal to the level of the top of the siphon in the interior of the wall, water flows through the siphon and escapes to the overflow or drainage ditch, and will continue to flow until air is admitted to the top of the siphon, which is accomplished by having a small hole in the inner face of the wall that will admit air and "break" the siphon as soon as the water is drawn down far enough to uncover it. In building the wall, the air hole can be located so as to run off any desired depth of water and keep the level in that part of the canal constant. In the three siphons referred to, there are in each case four siphon pipes, each having a cross sectional area of  $7\frac{3}{4}$  sq. ft., and each will discharge 180 cu. ft. of water per second under a 10 ft. 6 in. head. Three air vents 6 in. x 12 in. are used as described. See also CONCRETE.

**CAPE COD CANAL.** The year 1910 witnessed work begun in earnest on a project that had been attempted, financially, many years ago, and the need for which had thrust itself upon the people of the Colonies of New York and Massachusetts even in the seventeenth century. This was the Cape Cod Canal, to be excavated through the isthmus that separates Buzzards Bay from Barnstable Bay on the Atlantic side of the southeastern extremity of Massachusetts. There has been for many years a large traffic that must pass through Vineyard Haven Sound and thence around Cape Cod or vice versa, often encountering bad weather and severe storms. This traffic amounts to 25,000,000 tons a year, of which 9,000,000 tons are made up of one commodity, coal, destined to New England ports. To avoid this, a canal was being cut for an actual distance of 8 miles, but dredging must be carried out a total of 13 miles, mostly in Monument River, to secure a depth of 30 feet of water for the whole distance between the bays. The canal will be 100 ft. wide on bottom and 250 ft. on the surface at the narrowest point. It involves the excavation of 17,000,000 cubic yards of sand, but otherwise presents no especial difficulty, as no locks are required. In order to protect the north side of the channel entrance at the east or ocean end, a breakwater, 3000 ft. long, was in course of construc-

tion. An interesting fact in connection with the project is that on the east end, in Barnstable Bay, the tide rises 9 ft., while at the Buzzards Bay end, the rise is only  $4\frac{1}{2}$  ft. the tidal periods being 3 hours apart. In addition to the greater safety to vessels afforded by this canal, it will shorten the distance 66 miles as compared with the around-the-cape route.

**KIEL CANAL.** Among the notable canals in use, in 1910, was the Kiel Canal between the Baltic and North Seas and an enlargement of this was undertaken, and was still in progress at the close of the year, about 4000 men being employed on the work. It was to be made double its original width, and deepened to allow the largest warships to pass through. The locks were to be enlarged and increased in length to 1090 ft. The cost of the improvement was estimated at \$55,000,000.

**CHICAGO DRAINAGE CANAL.** A notable piece of work in the Chicago Sanitary District has been put into use recently. This is called the North Shore Drainage Channel, and is a canal excavated for the purpose of conveying the sewage from Evanston and other near-by residence localities into the Chicago River and thence to the Drainage Canal. Beginning at Wilamette, Ill., the channel is cut  $8\frac{1}{4}$  miles in a west and southwestern direction until it meets the north branch of the Chicago River at Lawrence Avenue. It is from 26 ft. to 30 ft. wide on bottom and from 75 ft. to 100 ft. wide at the water line; the banks for most of its length being cut back on a slope such as will make them about 140 ft. apart at the top. In order to insure a flow through the channel of 1000 cu. ft. of water a second, there is a pumping plant located at the Lake Michigan end, provided with electric motors driving horizontal shaft screw pumps. The total cost of the work was \$2,770,000.

**CANALEJAS, Señor.** See SPAIN.

**CANARY ISLANDS.** A group of islands off the northwestern coast of Africa, which form a Spanish province. Area, 2808 sq. miles; population (1900), 358,564; estimated (1908), 403,908. The seat of government is Santa Cruz (Teneriffe); leading town, Las Palmas. The products and exports include potatoes, onions, tomatoes, and nuts. The new cable (projected to Pernambuco, Brazil) is open from Teneriffe to Monrovia (Liberia). Governor (1910), A. Eulate.

**CANCER.** An analysis of vital statistics showed a general increase in deaths from cancer throughout the civilized world in 1910. Cancer now causes more deaths among women than tuberculosis, and, taking both sexes together and all ages, the death rate for cancer nearly equals that of tuberculosis. At the same time, laboratories for studying the disease were multiplying and vast sums of money were expended in the search for the cause and cure of this disease. In the United States, one person alone (the late Mr. George Crocker, who, with his wife, died from cancer) willed \$1,500,000 to Columbia University, to be used for biological laboratory research. Probably the most important original laboratory work done during the year was that of Carrel and Burrows at the Rockefeller Institute. These investigators succeeded in cultivating, for the first time, human sarcoma outside of the body. Previous to this, they had propagated a very malignant fowl sarcoma in the blood plasma derived from the fowl from

which the original tumor had been taken, and were able to study the development of new sarcoma cells from hour to hour. In October, 1910, fragments of a human sarcoma, just removed from a patient, were inoculated into blood plasma. In this transparent medium, the growth could be watched, and individual cancer cells could be observed to migrate into the surrounding medium and undergo a process of multiplication. These observations were looked upon as constituting a long step forward in the investigation of malignant tumors. Cancer of the stomach at the present time is looked upon as a hopeless malady, because of the difficulty of diagnosing it in time for effective surgical removal. The early recognition of its presence is therefore of vital importance. Neubauer and Fischer attempted to supply a test, by which it would be possible to detect its presence, in cases of suspected cancer of the stomach, by an examination of the gastric juice. For their experiments, these observers prepared a polypeptid, called glycytryptophan, which yields tryptophan on hydrolysis. It was found that normal gastric juice did not hydrolyze glycytryptophan, while that of individuals suffering from cancer apparently contained a ferment which split up the test substance. They believe that the test will prove of value in determining the presence of cancer in the very earliest stages. See also **PHOTOTHERAPY**.

Several investigators attempted to cure cancer by the injection of various organic substances designed to raise the natural resistance of the individual. Fickera of the Surgical Institute at Rome, taking for his premise the fact that age is such an important factor in the development of cancer, injected autolysates of fetal and embryonal tissues into 36 cases of inoperable carcinoma, with encouraging results. In five cases, the tumors retrogressed or were transformed into ordinary connective tissue. Five other cases were benefited, and eight not influenced at all. The injection material was prepared by mixing one part of human fetal tissue in about twenty parts of physiological salt solution, to which was added a small amount of thymol of phenol as a preservative, with a layer of oil or toluol on top. This mixture was kept at a constant temperature of 99° Fahrenheit for two months, when it formed a homogeneous fluid and was ready for use. Levin used the autolyzed liver tissue of "nullers," which are rats naturally resistant to tumor implantation, and succeeded in producing a high degree of immunity in rats, not only before inoculation with tumors, but afterwards as well. Dr. Gaylord, in the latest report of the cancer laboratories of the New York State Department of Health at Buffalo, held out a hope of greatly relieving, and perhaps curing, many cancer patients, by means of the cancer virus prepared at this laboratory. This hope was based on inoculation experiments with the virus on rats. The theory is that where the animal's resistance is not sufficiently weakened by one inoculation of the tumor, this resistance can be increased by repeated doses, and in many cases immunity raised to a point that will bring about a cure. Other investigations were conducted by the laboratory in regard to the prevalence of so-called "fish cancer," which is deemed a goitre and not a cancer, by many. It was pointed out as a remarkable coincidence that the area of the United States, which includes the greatest

concentration of human cancer cases, is almost identical with the territory in which various members of the trout family are affected by this tumor of the thyroid. The possibility that cancer may be distributed through water is therefore suggested. The report states that the increase of cancer in the United States has been from 9 per 100,000 population in 1850, to 43 per 100,000 in 1900, an average of 65 in 1901, and of 70 in 1906. In the year 1909 there were 7034 cases of cancer reported in New York State.

In New York City, the ascitic fluid from a recovered case of cancer which had attacked breast, chest wall, and liver, was used successfully with several patients as an injection, and suggested a possible field for new experiment. It is felt that research among animal malignant tumors has been but slightly helpful toward solving the problem, and that human beings suffering from cancer, who gladly offer themselves for any study, should be utilized to the abandonment of rats and fish.

**CANDIDUS, WILLIAM.** An American singer, died in April, 1910. He was born in Philadelphia in 1840. He served in the Civil War, attaining the rank of major of artillery in the Federal Army. After the war he studied for opera in Berlin and Milan and became in 1880 a member of the Opera Company of Frankfort-on-the-Main. He was also at one time connected with the American Opera Company.

**CANDLER, ALLEN DANIEL.** An American public official, died October 26, 1910. He was born in Lumpkin county, Ga., in 1834 and graduated from Mercer University in 1859. He served throughout the Civil War in the Confederate Army, rising to the rank of colonel. He was principal of several educational institutions from the close of the war to 1871, when he was elected to the State House of Representatives. From 1879 to 1880 he served in the State Senate and from 1883 to 1891 was a member of Congress. He was Secretary of State of Georgia from 1894 to 1898 and was elected governor in 1898, serving until 1902. From 1903 to the time of his death he served as State historian.

**CANDY, CHARLES.** See **NECROLOGY**.

**CANE, SUGAR.** See **SUGAR**.

**CANNON, JOSEPH G.** See **UNITED STATES**, section *Congress*.

**CAPE COD CANAL.** See **CANALS**.

**CAPE OF GOOD HOPE, THE.** A province (since May 31, 1910), of the Union of South Africa (q. v.); formerly the Cape of Good Hope Colony. Provincial capital, Cape Town.

**AREA, POPULATION, ETC.** Total area, estimated at 276,995 sq. miles; total population (1904), 2,409,804 (white, 579,747). The Dutch preponderate in the western districts; the English in the eastern. Area of the province proper, 206,860 sq. miles; population, 553,452 whites, 936,239 colored. The native territories are East Griqualand (7594 sq. miles, 222,685 inhabitants); Tembuland (4117 and 231,472), Transkei (2552 and 177,730), Walfish Bay (430 and 997), Pondoland (3918 and 202,757), and Bechuanaland (51,524 and 84,472). Number of marriages in 1908, 9446; births, 60,524; deaths, 33,967. Cape Town had (1904) 77,668 inhabitants (with suburbs, 169,641); Kimberley, 34,331; Port Elizabeth, 32,959; East London, 25,220. Immigration (1908), 23,511 adults and 3987 children; emigration, 27,479 adults and 5450 children. Education is free, but not com-

pulsory. Aided schools, June 30, 1908, 3726; pupils, 174,709. Students in colleges, 809. There is a university.

**INDUSTRIES.** Agriculture and stock-raising are important industries. In 1909 the wheat harvest was reported at 2,257,000 bushels, against 1,916,000 in 1908; corn in 1908, 1,758,000 bushels, against 3,550,000 in 1907. The Cape Province is the leading ostrich-breeding country; 500,000 tame birds are owned there, against 30,000 in all other countries (June 10, 1910). No statistics for cattle (1,954,390) and horses and mules (419,963) are given later than 1904. The number of sheep was reported, June 30, 1909, at 16,323,987, against 11,818,829 in 1904; goats, 7,376,346, against 7,162,463. Rigid regulations are being enforced to prevent an invasion of the fatal African coast fever, which has proved so disastrous to cattle in Natal and Transvaal. The vintage returns for 1909 are given at 3,445,200 gallons, against 4,950,000 in 1908. There are rich copper mines; gold and manganese are found; output of coal in 1908, 122,865 tons; value of diamonds found at Kimberley (1908), £2,685,150.

**COMMERCE, FINANCE, ETC.** The trade statistics given below are for calendar years and exclusive of specie; the financial, for fiscal years ending June 30:

	1906	1907	1908
Imports .....	£18,102,872	£15,586,792	£13,739,878
Exports .....	40,048,693	44,405,450	42,011,582
Revenue .....	8,236,880	7,701,192	6,981,873
Expenditure ..	8,231,719	8,349,316	7,973,727
Debt .....	49,199,918	51,235,343	53,145,880

British Board of Trade returns for 1909 give imports from Great Britain at £6,188,013; exports thereto, £7,693,042. Hides and skins to the number of 28,498,575, valued at £631,070, and 792,725 pounds of ostrich feathers, valued at £2,155,640, were exported in 1908-9. In 1907 the United States took feathers to the value of \$4,429,503; in 1908, \$4,304,518; in 1909, \$1,517,375.

Length of railways (December 31, 1908), 4242 miles; telegraph wires, 31,836; telephone wires, 5751; telegraph offices, 586; post-offices, 1065; postal savings-bank deposits, £2,654,062.

**GOVERNMENT.** The province is administered by an administrator (1910, N. F. de Waal), aided by a provincial council, elected for three years. There is an executive committee of four members. See **SOUTH AFRICAN UNION.**

**CAPE TO CAIRO RAILWAY.** See **EXPLO- RATION.**

**CAPE VERDE ISLANDS.** A group of 14 islands about 350 miles west of Cape Verde, constituting a Portuguese colony. Capital, Praia. Area, 1457 sq. miles; population (1900), 147,424 (3856 whites). Coffee, medicinal plants, sugar, millet, indigo, and tobacco are raised. Imports and exports in 1908 amounted to 2,096,273 milreis (1 milreis=\$1.08) and 354,781 milreis respectively, against 2,339,684 and 220,261 in 1907. In 1908, 1963 merchant vessels of 5,429,340 tons entered and cleared, exclusive of coasting trade. Estimated revenue and expenditure for 1909-10, 437,779 and 437,453 milreis respectively. Governor (1910), A. Moutinho.

**CAPITAL.** See **FINANCIAL REVIEW.**

**CAPUS, A.** See **FRENCH LITERATURE.**

**CARBON.** See **ATOMIC WEIGHTS AND CHEM- ISTRY.**

**CARCINOMA.** See **CANCER.**

**CAR CONSTRUCTION.** See **RAILWAYS.**

**CARDIFF FESTIVAL.** See **MUSIC.**

**CAREY ACT.** See **DRAINAGE**; also **IRRIGA- TION**

**CAREY, AUGUSTUS C.** An American inven- tor, died Jan. 15, 1910. When about 21 years of age he entered the employ of the Hinckley- Drury Locomotive Works in Boston and for fif- teen years he worked in machine shops. At the end of that time he opened a shop of his own. In 1850 he took out a patent for a carpet sweeper. At the same time he began the in- dustry of manufacturing labor-saving devices. From that time on until his death he was oc- cupied with inventions and took out more than one hundred patents, chiefly of electrical and mechanical devices. He was at one time a mem- ber of the Massachusetts legislature. Among his most notable patents were attachments for machines used in the manufacture of woolen goods, electric lamps, wireless telegraph ap- paratus, devices for preventing head-on and rear-end railway collisions, and the coherer, which in 1896 was modified and used as a "de- tector" in wireless telegraphy by William Marconi.

**CARLETON, HENRY GUY.** An American playwright, soldier and inventor, died December 10, 1910. He was born at Fort Union, N. M., in 1856, his father, General James H. Carleton, being at the time stationed at this post. He studied at Santa Clara College, California, from 1865 to 1870, and in 1873 was appointed second lieutenant of the Eighth United States Cavalry. He served in several campaigns against the In- dians. In 1876 he resigned from the service and engaged in journalism. He acted as editor and special writer on several newspapers in New Orleans, Chicago and New York until 1889, in the meantime doing much dramatic writing. He began his dramatic writing at a very early age, his first play, *The Age of Gold*, having been written when he was 15 years old. In 1880 he wrote a tragedy, *Memnon*, which was ac- cepted by John McCullough, but was never pro- duced. His next play, *The Lion's Mouth*, was produced by Frederick Warde in 1891, and in 1894 Leslie Wallack produced *Victor Durand*, which was a success. Then followed *The Pem- berton's*, *Princess of Eric*, *The Gilded Fool*, *The Butterflies*, *A Bit of Scandal*, *Colinette*, and *The Girl From Maxim's*, which was his last play produced. The best known of his plays is prob- ably *A Gilded Fool*, in which N. C. Goodwin made a success. Mr. Carleton was also inter- ested in chemistry and was the inventor of several devices for safety from coal mine fires and explosions.

**CARLISLE, JOHN GRIFFIN.** American law- yer and public official, Secretary of the Treasury under President Cleveland, died July 31, 1910. He was born in 1835 in Cambell (now Ken- ton) county, Ky., and was educated in the pub- lic schools of the State. He taught school and in his leisure time studied law. He removed to Covington and became a clerk in the law office of Governor J. W. Stevenson. In 1858 he was admitted to the bar. He had already become familiar with politics and in 1859 was elected to the lower House of the Kentucky legislature, where he served four terms. He was elected to the State Senate in 1868 and was re-elected to that body. In 1868 also he was a delegate at large to the National Democratic Convention

and in 1876 was one of the alternate Tilden electors at large from Kentucky. From 1871 to 1875 he was lieutenant-governor of Kentucky. He was elected to Congress in 1877 and was re-elected for successive terms until 1891. From 1883 to 1889 he was Speaker of the House. On the death of Senator Beck he was elected United States Senator and resigned from the House of Representatives in order to accept this seat. He took an active part in the political campaign of 1892, and on the election of Mr. Cleveland accepted the portfolio of the Treasury. In 1896 a movement was started to boom Mr. Carlisle for the Democratic presidential campaign at the next national convention. He declined, however, to be a candidate, although he took part in the campaign which preceded the election. He was opposed to the political doctrines of Wm. J. Bryan, and once when speaking at a meeting in Covington he was mobbed by a hostile assembly of the admirers of Bryan. At the expiration of his term of office as Secretary of the Treasury, he resumed the practice of law in North Carolina. He later removed to New York City and remained there practicing law until the time of his death. He was a strong opponent of Imperialism and was Vice-President of the Anti-Imperialist League.

**CARLYLE, A. J.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**CARLYLE, R. W.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**CARNEGIE, ANDREW.** See ARBITRATION, INTERNATIONAL; GIFTS AND BEQUESTS.

**CARNEGIE FOUNDATION.** See UNIVERSITIES AND COLLEGES.

**CARNEGIE GEOPHYSICAL LABORATORY.** See CARNEGIE INSTITUTION.

**CARNEGIE INSTITUTION OF WASHINGTON.** An institution founded in 1902 by Mr. Andrew Carnegie, who gave to a board of Trustees \$10,000,000 for its foundation. To this endowment fund was added in 1907 by Mr. Carnegie, \$2,000,000. The object of the institution is the promotion of investigation in the "broadest and most liberal manner." Many projects in widely different fields of inquiry have been considered or are being considered by the executive committee of the institution. These projects are chiefly of three classes, namely: First, large projects or departments of work whose execution requires continuous research by a corps of investigators during a series of years. Ten such departments have been established by the institution. With the names of their respective directors they are as follows: Department of Botanical Research, Dr. D. T. MacDougal, Tucson, Arizona; Department of Economics and Sociology, Professor H. W. Farnham, Yale University; Department of Experimental Evolution, Dr. C. B. Davenport, Cold Spring Harbor, L. I.; Geophysical Laboratory, Dr. A. L. Day, Washington, D. C.; Department of Historical Research, Professor J. F. Jameson, Washington, D. C.; Department of Marine Biology, Dr. A. J. Mayer, Dry Tortugas, Florida; Department of Meridian Astronomy, Dr. Lewis Boss, Dudley Observatory, Albany, N. Y.; Solar Observatory, Professor George E. Hale, Pasadena, Cal.; Department of Terrestrial Magnetism, Dr. L. A. Bauer, Washington, D. C.; Nutrition Laboratory, Dr. F. G. Benedict, Boston, Mass.

The second class of projects are those which may be carried out by individual experts in a limited period of time. Many grants have been

made by the institution in aid of such projects. The third class includes research associates and assistants. Under this head aid has been given to a considerable number of investigators possessing exceptional abilities and opportunities for research work.

From its organization in 1902 up to and including 1910, nearly 1200 individuals have contributed in one way or another to the promotion of the researches and publications undertaken by the institution. In addition to the larger departments of its work, numerous special researches, in aid of which upwards of 700 grants have been made, have been carried on by research associates and other individual investigators. For the departments of research, two astronomical observatories, five laboratories and a non-magnetic ship have been built and equipped, while the divisions of administration and publication have been provided with adequate quarters in the Administration Building in Washington, completed in 1909.

**SPECIAL DEPARTMENTS.** During 1910 work in the ten specially organized departments of research in the institution went forward with increasing vigor and productivity. The director of the Department of Botanical Research, which is located in a desert area, continued his investigations during the year on the water-balance of succulent plants, on the conditions of vegetable parasitism, on the variability of plant species induced by chemical treatment of their seeds, and on the influences of climate on plant organism. A general climatological study of the region about Tucson was carried on during the year and investigations of root systems and habits of desert plants were continued.

**EXPERIMENTAL EVOLUTION.** In the Department of Experimental Evolution, from the scientific point of view, the most interesting feature of the work during 1910 is found in the introduction of statistical and other quantitative methods, whereby biology is now passing from the first to the next higher stage in the development of science. From the more popular point of view this work is of special interest by reason of its bearing on the economics of plant and animal breeding and by reason of the light it is certain to shed on the laws of human heredity. For the needs of this department the institution purchased in January, 1910, a tract of 21 acres of very desirable land near the laboratory.

**ECONOMICS AND SOCIOLOGY.** Professor Farnham succeeded to the directorship of the Department of Economics and Sociology on the death of Dr. Carroll D. Wright. The work of this department during the year was a continuation of the plans begun by Dr. Wright. Several volumes of publications arising directly or indirectly from the investigations of the department were issued during the year. Two volumes of the Index of Economic Material in the Documents of the United States, those for Delaware and Kentucky, were also issued in 1910.

**HISTORICAL RESEARCH.** The Department of Historical Research published several volumes in 1910. One of the most interesting and valuable of these was published under the title *List of Documents in Spanish Archives Relating to the History of the United States, Which have been Printed or of Which Transcripts are Preserved in American Libraries*. Two other works of similar import were in press in the latter part of the year, namely, *Guide to the Materials for*

*American History in Roman and Other Italian Archives and Inventory of the Unpublished Material for American Religious History in Protestant Church Archives and Other Repositories.* Manuscripts are also prepared for the *Guide to Materials for American History in German Archives* and the *Guide to the Materials for the History of the United States in Mexican Archives.* The material in the archives of Paris is also being examined with a view to publication, and a guide to British materials is in process of rearrangement.

**GEOPHYSICAL LABORATORY.** The work of the Geophysical Laboratory has been in the main preliminary, but comprises chiefly the steps required to pass from a merely descriptive knowledge of rock formation to a knowledge based on definite measurements. Twenty-five publications came from the hands of members of its staff during the year. Many of these papers were published in German as well as in English.

**MARINE BIOLOGY.** The Laboratory of the Department of Marine Biology was damaged by the hurricane of October 14-18, 1910. This department published during the year a comprehensive monograph in three volumes by Dr. Mayer on *The Madusa of the World*, and two other volumes were passing through the press at the end of the year.

**MERIDIAN ASTRONOMY.** The Observatory of the Department of Meridian Astronomy which is being constructed in Argentina went forward rapidly in 1910 and this will be completed in 1911. Supplementary observations of the positions of the stars were carried forward in 1910 and arrangements for the final computations of these positions were proceeding at the Dudley Observatory. The department issued during 1910 a catalogue of 6188 stars for the epoch 1900. This is preliminary to the great catalogue of stellar positions projected by the department. The director also published a list of 1059 standard stars for 1910.

**NUTRITION LABORATORY.** The Nutrition Laboratory, although it has been in operation less than two years and is not yet fully equipped, has already produced contributions of fundamental importance to the knowledge of chemistry, physics, physiology and the pathology of nutrition. Of the many investigations carried on, one of the most important was an investigation in which decided progress has already been made, but which may yet require many years to complete—the nature and meaning of metabolism in diabetes. The preliminary results of this research were published during the year. One new calorimetre was completed and another partly constructed in 1910. These were described in the publications issued by the director.

**MT. WILSON OBSERVATORY.** At the observatory of the institution at Mount Wilson, several large pieces of apparatus for the new tower telescope, for the 60-inch telescope and for the 100-inch grinding machines were completed during 1910. The towers for the new 100-foot telescope, begun in 1909, were completed, together with the well, 75 feet deep in the rock below, which forms a part of the telescope tube of this instrument. Progress was made during 1910 in the details of designs for the proposed 100-inch or Hooker telescope. The International Union for Coöperation and Solar Research held a meeting at the observatory from August 29 to September 4, 1910. This meeting is regarded as the most important meeting hitherto held by the

Union. Numerous investigations are under way at the observatory and at the Physical Laboratory at Pasadena.

**TERRESTRIAL MAGNETISM.** The work carried on by the Department of Terrestrial Magnetism is of the greatest practical as well as theoretical importance. Its purposes include a magnetic survey of the earth, together with a deeper knowledge of the earth's magnetism and its cosmic connections. The most striking event of the year in this department was the trip of the non-magnetic ship *Carnegie*, which sailed on her first cruise in 1909. In her first voyage, which was from Falmouth, England, to Funchal, Madeira, thence to Hamilton, Bermuda, and thence to Brooklyn, N. Y., this vessel proved more effective even than was anticipated. She was able to discover errors of unexpected magnitude in the best sailing chart of the North Atlantic. (See **TERRESTRIAL MAGNETISM.**) This department also completed early in the year an expedition in Africa from the Cape to Cairo. In this expedition a total of 384 stations were occupied. Work in Turkey, Palestine, Syria and Arabia and in the islands of Rhodes and Cyprus was also carried on and work was begun in South America. In the special research departments of the institution about 50 associates carried on investigations during the year, either by aid of grants made directly to the individuals concerned or to organizations. These investigations included nearly every branch of learning and science.

**PUBLICATIONS.** The institution issued 20 publications, including pamphlets and monographs, during the year. The President of the institution is Robert S. Woodward; Chairman of the Executive Committee, William H. Welch, and Chairman of the Finance Committee, Seth Low.

**CARNEGIE PEACE FUND.** See **ARBITRATION, INTERNATIONAL.**

**CARNEGIE, THE.** See **TERRESTRIAL MAGNETISM.**

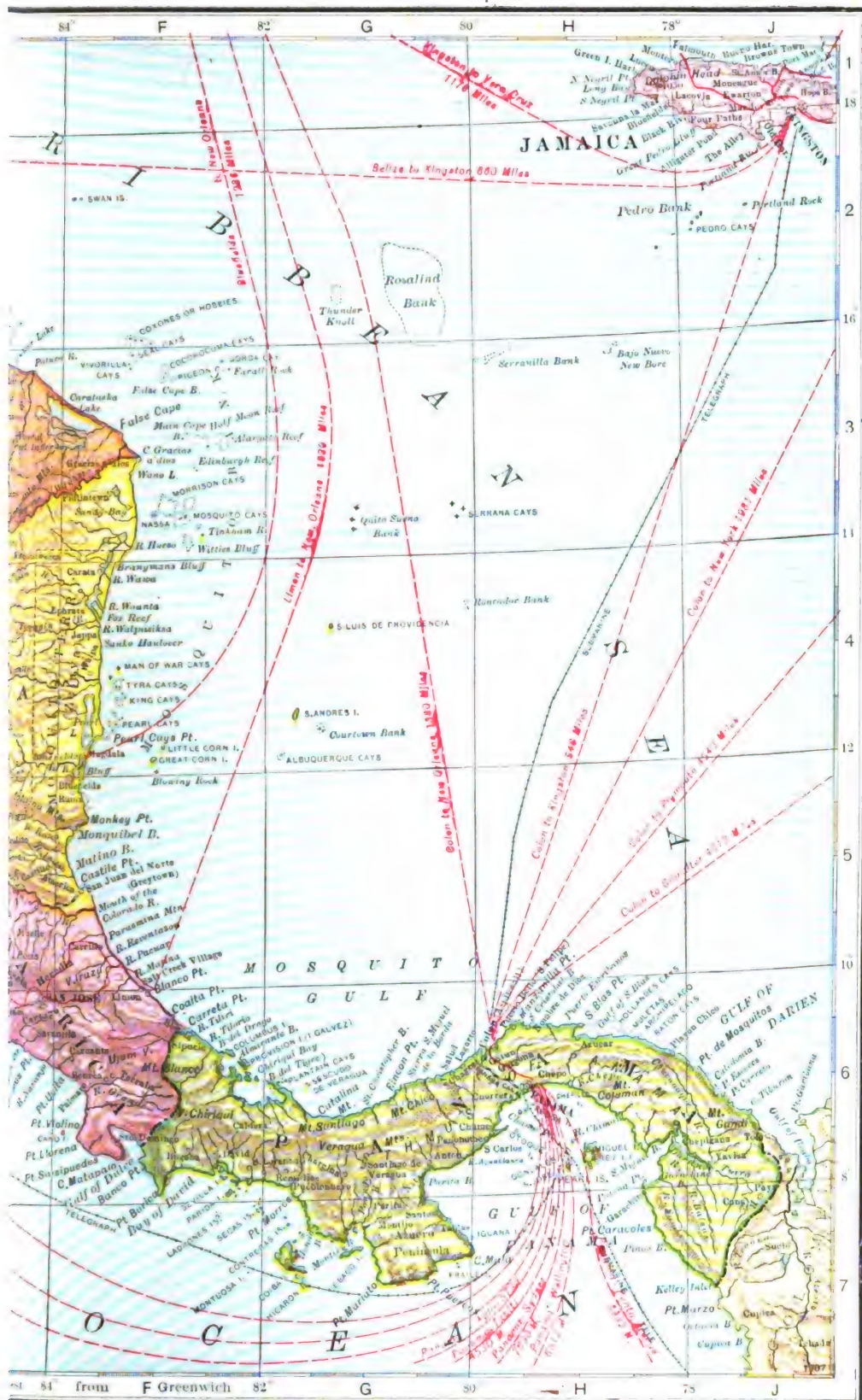
**CARNEY, HUGH J.** An American Roman Catholic clergyman and economist, died March 20, 1910. In 1855 he joined the Christian Brotherhood at Montreal. At the outbreak of the Civil War he was in Rock Hill College, Baltimore, and from there was transferred to Manhattan College, New York City. From there he went to Waterford, Ireland, where he held the chair of mathematics for six years at the Normal College in that city. On his return to the United States in 1896 he was appointed professor of economics at Manhattan College, and he retained this position until he was obliged to retire on account of ill health.

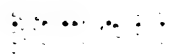
**CAROLINE ISLANDS.** A German possession, forming part of the German New Guinea Protectorate, and made up of the Caroline, Pelew, and Marianne (or Ladrone) Islands, (Guam excepted), all lying north of New Guinea. Area between 560 and 600 sq. miles. Ponapé is the capital of the Eastern and Yap of the Western groups including the Pelew and Marianne Islands. Total population (estimated), 55,000; whites in 1908, 257. Total imports and exports (1908), 615,456 and 329,637 (chiefly copra) marks respectively. Total vessels entered (1906), 87, of 33,274 tons. Estimated expenditure, including the Marshall Islands, 577,000 marks. The administrator (under the governor of German New Guinea) at Ponapé was in 1910 M. Boeder; at Yap, M. Fritz.

- CARR, EUGENE A.** See NECROLOGY.
- CARREL, Dr.** See CANCER.
- CARTER, Mrs. LESLIE.** See DRAMA.
- CARTER, T. H.** See MONTANA.
- CARTOGRAPHY.** See EXPLORATION.
- CARTWRIGHT, Sir RICHARD JAMES.** See CANADA, *History and Government*.
- CASCADE MOUNTAINS, SNOW-SHEDS.** See CONCRETE.
- CASCADE MOUNTAINS, TUNNEL.** See RAILWAYS; TUNNELS.
- CASWELL, ROBERT C.** See NECROLOGY.
- CATHOLIC CHARITIES.** See CHARITY.
- CATHOLIC CHURCH.** See ROMAN CATHOLIC CHURCH.
- CATHOLIC UNIVERSITY OF AMERICA.** An institution of higher learning under the auspices of the Roman Catholic Church, founded in Washington, D. C., in 1885. There are faculties of philosophy, letters, sacred science, law and science. The undergraduate department of the university was opened in 1902. There are connected with the university the following non-affiliated undergraduate colleges: Marist, Juniorate and the College of St. John Canty. In 1909-10 the registration of students in the university was about 400, while the faculty numbered 46. During the year Rev. George H. Dougherty, D. D., was elevated by the board of trustees to the vice-rectorship of the university. The following members of the faculty were promoted from associate professors to ordinary professors: Rev. P. J. Healy, professor of Church History; Joseph Dunn, Ph. D., professor of Celtic Language; Rev. Thomas E. Shields, Ph. D., professor of Psychology. A new professor, Fred J. Merriman, was appointed in the department of Civil Engineering to succeed Francis J. Thompson, who resigned. The university made an important departure by adding to its school of sciences a course in architecture. At the head of this department is Frederick V. Murphy. Several additional instructors were appointed in the school of letters and an additional professor was appointed in the school of Oriental languages, Rev. Arthur A. Vaschalde. All departments of the university showed growth. A new central heating plant was under contract at the end of 1910, and the upper floors of this will afford lecture rooms for the classes in mechanical and electrical engineering. A new gymnasium has also been erected. The library contains about 70,000 volumes. At the beginning of 1911 a new publication will be issued, to be known as the *Catholic Educational Review*. The productive funds in 1909-10 amounted to \$998,445 and the income to about \$35,000. The rector is the Right Reverend T. J. Shahan, D. D.
- CATSKILL AQUEDUCT.** See AQUEDUCTS.
- CATTLE.** See STOCK RAISING.
- CATTLE-TICK.** See VETERINARY SCIENCE.
- CAVALRY.** See MILITARY PROGRESS.
- CAYMAN ISLANDS.** Three West Indian islands (Grand Cayman, about 93 square miles, 5500 inhabitants, capital Georgetown, with 2000 inhabitants; Little Cayman, 4½ square miles, 98 inhabitants; Cayman Brac, 15½ square miles, 900 inhabitants) belonging to Great Britain, administratively attached to Jamaica, but governed locally by a commissioner. Coconuts, turtle shell, and hides are exported. Imports (1906-7), £28,000; exports, £16,000. Reserve fund, £4000. Commissioner (1910), George S. Hirst.
- CECIL, Lady.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticisms*.
- CECIL, Lord WILLIAM.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticisms*.
- CELL.** See BOTANY and BIOLOGY.
- CELTIC PHILOLOGY.** See PHILOLOGY.
- CEMENT.** Statistics of cement production in 1909 were gathered and published by the United States Geological Survey in 1910. According to this authority the total production of Portland, natural and puzzolan cements produced in the United States during 1909 was 64,196,386 barrels, valued at \$51,232,979. This may be compared with the production in 1908 which was 52,910,925 barrels, valued at \$44,477,653. The increase in quantity is the largest ever recorded, but the failure of the increase in value to keep pace with the increase of production is significant of the trade conditions which the cement industry encountered during 1910. Of the cement produced, Portland cement amounted to 62,508,461 barrels valued at \$50,510,385; natural cement, to 1,529,279 barrels valued at \$623,141. Pennsylvania produced far in excess of any other State and was followed in the order named by Indiana, Kansas, Illinois, New Jersey, Missouri, Michigan, California, Washington, New York and Ohio. Other States produced less than 1,000,000 barrels. The total number of plants in operation in 1909 was 103 as compared with 98 in 1908. The largest quantity of natural cement was produced in New York, with Pennsylvania second and Indiana and Illinois combined, third. There were imported for consumption into the United States in 1909 443,888 barrels of cement, of which at least 95 per cent. was Portland cement. The exports, consisting also almost entirely of Portland cement, amounted in 1909 to 1,056,922 barrels.
- Business conditions in the cement industry in 1910 were so unfavorable that only the best equipped plants would make even a moderate profit, and this notwithstanding an advance of 10 cents per barrel in price made by the Licensees' Association in July. The cement manufacture has suffered from over-production. At the end of December the dissolution of the Association of Licensed Cement Manufacturers was announced. It was followed immediately by a cut of price to 85 cents per barrel at the mills. The price established in July was \$1.25 a barrel.
- CENSUS, RELIGIOUS.** See RELIGIOUS DENOMINATIONS.
- CENSUS, THIRTEENTH.** See UNITED STATES CENSUS.
- CENTENARIES.** See article on EXPOSITIONS.
- CENTRAL AMERICA.** See articles on the separate countries.
- CENTRAL AMERICAN COURT OF JUSTICE.** See ARBITRATION, INTERNATIONAL.
- CENTRAL BANK.** While the discussion of currency and banking reform was not as voluminous as it had been in 1909 there were nevertheless a considerable number of articles and addresses on the subject. A National Conference on the Currency Problem was held under the auspices of the Academy of Political and Social Science at Columbia University, in November. In his address at this Conference Theodore Marburg held that central banks are not oligarchic but democratic institutions; for









they establish conditions which protect the small banks from the dominance of large ones. Holding that the fundamental need in this country is the centralization of bank reserves without the destruction of decentralized banking power, he laid down the following principles: 1, cash reserves should be centralized so as to be available when needed, and withdrawn, not from lack of confidence, but for actual circulation or exports; 2, banks should be able to build up an available reserve with the central institution by means of commercial paper; 3, commercial paper should be the chief basis of loans instead of stocks and bonds; 4, the central institution should serve as an inter-city clearing house; 5, notes partly secured by gold should be given only to the central institution, thus strengthening its reserve power and increasing its control over the expansion of credit; 6, the function of making money and of issuing money should be completely separated. Mr. Charles A. Conant, writing in the *North American Review*, argued for a central bank on the ground that every commercial nation has arrived at it by a process of evolution. He held that the organization of a central bank is in harmony with the general movement toward concentration in commerce and industry. He pointed out that even those countries which do not have a central bank in form do have it in actuality. Thus, in Scotland, there is reliance upon the Bank of England, in times of distress; in Canada, the system centres about the Bank of Montreal, which, with its branches, holds one-fifth of all the banking assets of Canada; and in Mexico, the National Bank holds two-fifths of the assets of all banks of issue.

Mr. Victor Morawetz, writing in the same magazine, pointed out that, while the present system cannot be wholly vicious since the United States has greatly prospered under it, yet we need a system that will be always safe and useful. The chief lack of our present system, in his opinion, is some means of checking the expansion of bank credits. This is done in Europe by means of a central bank. It could be done in this country by such a bank which acted as a common depository of reserves and as the sole depository of government funds, and which had a monopoly of note issues. He pointed out that such a bank could pursue one or both of two plans. First, it could rediscount commercial paper, thus controlling interest rate and the expansion of credit. Secondly, it could control note issues so as to prevent the withdrawal of gold for use as a circulating medium and, on the other hand, so as to prevent an undue expansion of loans. The central banks of France and Germany use both of these methods; the Bank of England uses only the first. Though a central bank may be quickly created by act of Congress, Mr. Morawetz expressed his opinion that many years of experience would be needed to bring about its suitable adjustment to commerce, industry, and public opinion.

A modification of the central bank idea was presented by Mr. Charles D. Dawes, in the *World To-day*. He pointed out as weaknesses of the present system the inelasticity of the currency; the undue shrinkage of credit in times of panic; the lack of a central control over improper tendencies of speculation; the inadequacy of means of discouraging gold exportation and the absence of facilities for mobilizing bank reserves in critical times. While he ex-

pressed himself in favor of an asset currency, he pointed out that this does not provide for the check of undue expansion of credits, but, on the contrary, may actually further it. Such a check is afforded by a central bank which holds reserves and can raise discount rates. But, Mr. Dawes contended, a central bank in this country cannot be protected from legislative or demagogic attacks which would undermine its credit and thus destroy its usefulness. He, therefore, concluded in favor of some plan for the issue of notes by national banks on joint credit as proposed by Mr. Morawetz in his book, *The Banking and Currency Problem in the United States*. By this plan national banks would form an association for the sole purpose of issuing notes on joint credit. While the association itself would have neither capital nor deposits, its members would have at least 250 million dollars aggregate capital. There would be a board of managers of from fifteen to twenty-one members. The volume of notes and the reserve against them would be controlled by the government through the Secretary of the Treasury. The association would have headquarters at Washington and branches in every large city. The board, with the Secretary of the Treasury, would fix the limit of note issue for the several banks. Mr. Dawes pointed out that such an association could influence the interest rate by increasing or decreasing the reserve against notes. This would supply elasticity to the currency, regulate banking and commercial credits, perfect the system of bank reserves, control the movement of gold and, while securing the benefits of the central bank, would reduce the probabilities of political attacks. The only modification which Mr. Dawes would make in this plan would be to remove the power of the Secretary of the Treasury over the reserve to be held against association notes; because, he held, the Secretary might be influenced through political consideration, to heed the demand of powerful business men for an undue expansion of credits.

Still another statement of defects and needed reforms was made by Congressman Vreeland, Chairman of the House Committee on Banking and member of the Monetary Commission. He stated in the *Independent* that our 24,000 banks are so many separate units without any coördinating control in times of financial stress. The currency lacks elasticity, so that it is redundant at times, piling up in New York and furnishing a basis for bull movements on the stock exchange, and scarce at other times when greatly needed for legitimate business transactions. The bank-note system is eccentric, depending on the price of bonds rather than on business demands. The reserve system is bad, for each bank is required to have its own reserve; in this way about 1,400,000,000 dollars are kept in idleness. Prof. O. M. W. Sprague in the *Quarterly Journal of Economics*, stated that the character of security for bank-note circulation is less important than commonly assumed. While favoring an asset currency he contended that such cannot be made very elastic, until the banks can agree to pay less interest on deposits. Such interest payments concentrate deposits in financial centres and at the same time force city banks to expand their loans up to the legal limit.

At the meeting of the American Academy of Political and Social Science at the University

of Pennsylvania in December, Senator Aldrich, Chairman of the National Monetary Commission, pointed out the advisability of one national system of banks for the entire country. He stated that we might have one class of national banks for a commercial business, another doing a savings bank business, and another doing a trust business. He thought that reform in this country must take the direction not of a central bank competing with already existing institutions, but of some association superimposed on existing banks. This might take the form of one great central association or of separate associations for different sections of the country, with or without federation. Such an association of banks should insure steady rates of interest, prevent bank suspensions and extend credit to worthy banks and business concerns. At the same time Hon. A. Piatt Andrew, the secretary of that Commission, pointed out three fundamental differences between American and European banking systems. In the first place European banks have more coherency, whereas individualism is carried to an extreme in this country; the result is that the American banking system is more easily demoralized in times of panic. In the second place the reserves in European banks are more available and more active, because each individual bank keeps the main body of its reserve with some central institution. In the third place the tendency in Europe has been toward a concentration in the control of note issues; this makes possible a better adjustment of currency supply to currency demand. He thought these three principles should furnish the basis for the constructive programme of the National Monetary Commission. See **BANKS AND BANKING, NATIONAL BANKS, AND FINANCIAL REVIEW.**

**CENTRIFUGE.** See **ZOOLOGY.**

**CERIUM.** See **ATOMIC WEIGHTS.**

**CERTIFICATES OF INDEBTEDNESS.**

See **BANKS.**

**CEYLON.** An island in the Indian Ocean, laying south of Hindustan; a British crown colony. Capital, Colombo.

**AREA AND POPULATION.** Area, 25,332 square miles. Population (1901), 3,565,954; estimated, December 31, 1908, 4,038,456; 1909, 4,082,935. The birth rate in 1909 was 36.7, the death rate 30.3 per 1000. Immigrant laborers (1909), 80,718. Colombo had (1901), 158,228 inhabitants; Galle, 37,316; Jaffra, 33,879; Kandy, 26,519.

**EDUCATION, ETC.** In 1908 the government schools numbered 648, with 80,986 pupils; grant-in-aid schools, 1782, with 179,929 pupils; unaided schools, 1549, with 26,180 pupils; government expenditure, £89,833. The technical college had 164 students. The Royal College receives grant-in-aid, and there is a government training college. There are also 37 industrial schools and orphanages.

The Buddhism of Ceylon differs materially in doctrine and practice from that of Tibet, China, and Japan. The Buddhists numbered, in 1901, 2,141,599; Hindus, 828,622; Mohammedans, 248,140; Christians, 362,018.

**PRODUCTION.** According to the last census (1901), 65.8 per cent. of the population are engaged in agriculture. In 1903, the area under cultivation was given at 2,773,657 acres; under pasture, 662,152. Area planted to rice (1909), 678,194 acres; other grains, 104,554; tea, 535,891; coffee, 1769; cocoanuts, 1,035,863; rubber,

154,460; cinchona, 263; cinnamon, etc., 47,906; cacao, 36,324; tobacco, 15,108. Total quantity of rubber sold in 1908, 7808 cwt.; in 1909, 13,621. The livestock (1908 estimate) included 1,635,456 cattle, 3643 horses, 100,603 sheep, 174,072 goats, and 93,371 swine. The rinderpest epidemic carried off 70,940 head of cattle in 1909. The government dairy and model farm has over 200 head of cattle brought from Scinde.

In 1908 there were 648 plumbago mines and 3303 gem quarries. The export of graphite was 643,853 cwt. in 1909; 516,316 in 1908. Gold, monazite, thorium, and mica also occur. The pearl fisheries are leased to a company at an annual rent of Rs. 310,000 (1 rupee=33.44 cents). There was no pearl fishery in 1909, though the annual rental was paid, and Rs. 73,298 were expended by the company in experiment and research. The government realized Rs. 1,520,648 in 1909, Rs. 1,760,552 in 1908, from salt sales (salt is a government monopoly). Native industries include weaving, woodcarving, and the manufacture of jewelry, pottery, lacquer, tortoise-shell ornaments, and earthenware.

**COMMERCE.** The total imports and exports in 1909 (exclusive of specie, but including coal exported for use of steamers) were valued at Rs. 125,441,00 and Rs. 146,879,000 respectively (Great Britain, 26. and 49.2 per cent.; British possessions, 61.7 and 15.5; other countries, 12.3 and 35.3). The origin of imports is seen in the following three-year table:

	1907 Rs.	1908 Rs.	1909 Rs.
British India .....	60,468,700	54,137,900	51,078,100
Great Britain ....	32,628,000	32,329,000	32,376,100
Straits Settlements ..	2,904,100	9,906,500	13,073,200
Burma .....	4,045,800	3,049,100	5,574,500
Germany .....	2,921,100	2,826,400	3,296,500
Maldiv Islands.....	2,267,000	2,033,200	2,455,000
Hongkong .....	1,152,600	1,789,000	2,407,000
Japan .....	1,507,000	1,818,700	1,713,500
United States....	1,002,400	1,097,500	1,077,000

The principal exports, their value in 1908 and 1909, and the countries of destination, are shown in the following table:

	Great Britain	British Colonies	Other Countries
Tea	1908..44,811,900	14,178,700	14,562,700
	1909..50,608,400	15,253,900	15,149,900
Cocoanut prods.	1908..10,436,600	1,393,200	17,507,500
	1909..10,541,100	1,104,500	20,843,000
Plumbago	1908..2,476,900	62,100	5,464,600
	1909..1,964,600	60,500	7,954,500
Rubber	1908..2,243,700	173,700	1,189,500
	1909..5,080,298	126,282	3,169,023
Cinnamon	1908..259,000	56,000	2,298,800
	1909..301,000	53,900	2,374,700
Cacao	1908..1,890,200	187,400	585,800
	1909..1,954,300	173,300	640,100
Citronella oil	1908..443,600	84,500	515,600
	1909..565,900	44,000	523,300
Areca nuts	1908..11,000	2,089,800	81,900
	1909..1,900	2,274,900	101,600

Total shipping (1907), 6,657,323 tons.

**COMMUNICATIONS.** The total length of railway lines open to traffic at the end of 1909 was 576½ miles, an increase of 10½ miles over the previous year by the completion of the last section of the Negombo line. Receipts for the year, Rs. 11,746,603; working expenses, Rs. 6,990,419. Capital expenditure to end of 1908, Rs. 86,795,-

000. Work was begun in November, 1909, on the Chilaw extension; expenditure in 1909 on the Ratnapura extension, Rs. 1,310,381; work on the Mannar link with India progresses rapidly. Length of telegraph wires, 4292 miles; telegrams sent in 1909, 744,175. Number of post-offices, 418.

**FINANCE.** The unit of value is the rupee, valued at 33.44 cents. The revenue and expenditure for 1909 amounted to Rs. 39,332,861 and Rs. 35,789,398 respectively, against Rs. 35,572,849 and Rs. 35,032,055 in 1908. Principal sources of revenue (1908): Government railways, Rs. 10,917,929; customs, 9,648,850; arrack, rum, and toddy licenses, 4,381,000; stamps, 2,047,988; port and harbor dues, 2,186,626; government timber and salt sales, 1,760,551; land sales, 1,024,130. Principal items of expenditure: Establishments, Rs. 10,588,487; interest on public works (annually recurrent and extraordinary), 7,158,429; on loans, 3,667,166; military, 1,978,898; pensions, etc., 1,608,539. Public debt, December 31, 1909, £4,444,381. The Ceylon Savings Bank (December 31, 1908) had deposits to the sum of Rs. 4,556,778. Post-office savings bank deposits, Rs. 2,201,177. The financial year of the colony will run in future from June to June; the statistics for revenue and expenditure are therefore the last for calendar years.

**THE MALDIVÉ ISLANDS** (17 coral islets) are tributary to the Ceylon government. They lie 500 miles west of Ceylon, are governed by a hereditary sultan residing in the island of Mali, and have a population of 30,000 Mahomedans.

**GOVERNMENT.** The colony is administered by a governor (1910, Sir Henry McCallum), assisted by an executive council of 5 members and a legislative council of 17.

An important franchise measure was under discussion in the legislature and reached its second reading in September. It provided for four seats in the Chamber based on the elective principle. The seats were to be held respectively by a European representative from the cities, a European representative from the country, an educated native Ceylonese, and a burgher. In November the Crown Prince and Princess of Germany paid a visit to Ceylon, arriving at Colombo on November 20.

**CHADWICK, ALICE.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**CHADWICK, F. E.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**CHAMBERLAIN, A. B.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**CHAMBERLAIN, N. S.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**CHAMBERS, JULIUS.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**CHAMBERS, R. W.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**CHAMPAGNE.** See LIQUORS, FERMENTED AND DISTILLED.

**CHAMPLAIN CANAL.** See CANALS.

**CHANDLER FOUNDATION.** See CHEMISTRY.

**CHANGSHA.** See CHINA, *History*.

**CHANUTE, OCTAVE.** An American engineer and scientist of French descent, died November 23, 1910. He was born at Paris in 1832 and came to the United States in 1838. He was educated at private schools in New York City.

From 1849 to 1863 he was civil engineer on various railroads and from 1863 to 1867 was chief engineer of the Chicago and Alton Railroad. He was connected with other railroads until 1883. He assisted in building the Chicago and Alton Railroad. Mr. Chanute early in his life became interested in aeronautics and originated the idea of biplane aviation. His work in perfecting the scientific side of aeronautics is very valuable. He was at one time President of the American Society of Civil Engineers and was a member of several other engineering societies in the United States and other countries. He was the author of *The Kansas City Bridge* (with George Morison, 1870), and *Progress in Flying Machines*, together with numerous papers and articles on engineering subjects.

**CHAPOWSKI, Countess BOZENTA.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**CHARCOT, JEAN.** See POLAR RESEARCH.

**CHARITIES AND CORRECTIONS, NATIONAL CONFERENCE OF.** See CHARITY.

**CHARITY.** One of the significant signs of the times is the great increase in charitable and philanthropic activities. This is only one phase of the world-wide humanitarian movement which is affecting the social life of every Western people. The new charity is more sympathetic with misery than the old and much wiser in dealing with it. The keynotes of modern methods are knowledge and organization. With the increase in financial resources, due mainly to the willingness of wealthy citizens to devote funds to the relief of the needy, organization of charitable agencies became necessary both for efficiency and for economy. Organization of city and State associations has been followed by numerous annual conferences. The scope of modern charities, as shown in the reports given herewith, is broad and varied; and there is a marked tendency toward prevention and constructive action as against the old plan of temporary relief. Moreover the view that social injustice and maladjustment rather than individual weakness are the prime causes of poverty and distress is steadily gaining ground.

**NATIONAL CONFERENCE OF CHARITIES AND CORRECTION.** The thirty-seventh annual conference met at St. Louis, May 19-20. The discussions well illustrated the increasing demand for a clear view of the essential facts, for a knowledge of causes, for a more definite location of responsibility for poverty, and the growing dissatisfaction with haphazard momentary relief. Thus consideration of relief for widows and orphans led directly to a discussion of industrial accidents, occupational diseases, and other general causes of widowhood. This latter was in turn made partly responsible for juvenile delinquency, as were also housing conditions, street life, and industrial work by mothers. The presidential address of Miss Jane Addams of Chicago on Charity and Social Justice developed the growth of the hatred of injustice as a factor in the betterment of social conditions. Noting that modern poverty and degradation are everywhere connected with unjust economic conditions or deteriorating social surroundings, she pointed to the many activities seeking to protect the weak from exploitation or to safeguard and enhance the life and welfare of the citizen. The general sessions of the Conference were devoted to consideration of the best means of caring for widows, wayward girls and women delinquents

and the blind. Special sections were devoted to the discussion of Families and Neighborhoods; Occupational Standards; Health and Sanitation; Law Breakers; Remedial Loans; School and Community; State Supervision and Administration; Children; and Publicity. Under Occupational Standards was brought out clearly the growing importance attached to the industrial factor in dependence; the need of standards of industrial hygiene; the development of standards of workmen's compensation for accidental injury or death (see EMPLOYERS' LIABILITY); the movement for wage standards and the fixing of minimum wages. Here was presented also a paper on *The Toxin of Fatigue*, by Dr. Henry B. Favill of Chicago, in which the so-called fatigue toxin, a poison said to be developed in the body by excessive labor, was shown to be as yet not fully demonstrated, though there can be no doubt of the deteriorating effects of undue wear and tear of the worker. Trade diseases were also discussed (see OCCUPATIONAL DISEASES). Under Health and Sanitation the first topic was medical inspection of schools, stress being laid on its relation to contagious diseases, and on ventilation as a means to vitality; the second was hospital social service, being a study of the new activities of city hospitals in attempting to alleviate the social and home environment of their patients; the third was on blindness, its relation to venereal diseases and the ignorance of mid-wives, and its prevention by proper medical attention at birth. The subject of Remedial Loans called attention to the new movement just gathering headway whereby the professional money-lender, the "loan shark" who thrives on small loans to needy workers, is to be driven out of business by loan societies and social agencies giving needed temporary aid. Fully a score of such agencies have been organized. Indeed the first annual meeting of the National Federation of Remedial Loan Associations met at this time and place.

The next Conference will meet at Boston, June, 1911, with Mr. Homer Folks of New York as president, and Mr. Alexander Johnson of Fort Wayne, Ind., as secretary.

THE NATIONAL ASSOCIATION OF SOCIETIES FOR ORGANIZING CHARITY, was formed at St. Louis, May 25. A permanent committee on organization was appointed to draw up a constitution and prepare a programme for the meeting at Boston, 1911. Its main purpose will be the extension of the charity organization movement.

NATIONAL CONFERENCE OF JEWISH CHARITIES. This met at St. Louis, May 17-19, in connection with the above National Conference. Registered delegates numbered 156. Prof. Jacob H. Hollander, the president, spoke on Forces and Tendencies in Jewish Charities; he justified the existence of separate Jewish charities by the mental, physical, and moral differences of the Jewish people. A report on Desertion classified causes under "other women" and "left to seek work." Desertion was found to be actually less frequent in hard times than in good, because of the greater activity of charitable agencies. The Industrial Removal Office was reported to have placed some 50,000 immigrants who had settled in New York, 85 per cent. of whom stayed where placed. Other topics were Legal Aid, Boarding Out Jewish Children, Pensioning Widowed Mothers, Education for Delinquent Children, Social Work as a Profession. The Section of Jewish Social Workers met at the same time

and place. Mr. Lee K. Frankel, New York, was chosen president for 1911 and Mr. Louis H. Levin, Baltimore, secretary.

THE FIRST NATIONAL CONFERENCE OF CATHOLIC CHARITIES met at the Catholic University, Washington, D. C., September 25-27. Delegates from many States were in attendance and a great variety of subjects were discussed. Among these were: Recognition of the Religion of Dependents of the State; Protection of Young Girls; The Dependent Family; The Church and Social Reform; Delinquency; Tuberculosis Among the Poor; Social Settlements; Schools of Philanthropy; Legal Aid for the Poor. Coöperation with other societies and with the National Conference, the Consumers' League, and The Child Labor Committee was advocated. Cardinal Gibbons was made honorary president; Monsignor T. J. Shahan, rector of the Catholic University, president; and Dr. W. J. Kerby of the same university, secretary. The second conference will meet in Washington, D. C., September, 1912.

OTHER CONFERENCES. The *Western Reserve Conference on the Care of Dependent and Neglected Children* met at Cleveland, November 17-19, at the call of twenty child-caring institutions. The topics discussed were the dependent child and the institution; the dependent child and the foster home; and coöperation of child-caring agencies. About 1400 persons attended the sessions. Forty-five organizations participated and forty-one exhibits were shown. Among these were those of the Children's Aid Society of Boston, the National Child Labor Committee, the Child Helping Department of the Russell Sage Foundation, and the Speedwell Society. The recommendations emphasized the value of home life and of constructive work in the home of such children; the superiority of the foster home over the public institution unless the child be defective; the need of expert physical examinations, and careful preliminary investigation. The chairman, Mr. James R. Garfield, appointed a committee to arrange for future conferences, and steps were taken toward the formation of a central committee on child welfare.

The eleventh *New York State Conference on Charities and Corrections* met at Rochester. Mr. George A. Lewis was president. The principal topics considered were congestion of population and the social evil; but some attention was given to public institutions and public coöperation; problems of widowhood; prevention and treatment of infant blindness; and sweatshops. The 1911 conference plans to meet at Watertown, November 14-16; president, Rev. Dr. Max Landsberg of Rochester; secretary, John A. Kingsbury of New York.

The *First Annual New York City Conference* was held in May, under the presidency of Robert W. Hebbard, former Commissioner of the City Department of Charities. The Congestion of Population (q. v.) was made the foundation fact in problems of poverty, ill-health, disease, and bad social conditions in the city. Dr. J. S. Billings of the Health Department found a death rate among children of 87 per 1000 in an Italian block with 9426 people, while the rate for the city was 51. Likewise the most congested block had an average of 362 tuberculous patients during 15 years, while a good block had only 16. In the discussion of the Care of Children in institutions it was brought out that institution children often have better food, health, educa-

tion, and industrial training than those in congested quarters. The cottage plan was strongly endorsed. In the session on the Care of Families, the establishment of a legal minimum wage was advocated as the prime requisite for the eradication of poverty. This view was opposed by Wm. I. Nichols of the Brooklyn Bureau of Charities, who found in the industrial agency, whereby work of some suitable kind is found or provided, a means of testing the worthiness of the applicant for aid. Dr. Lee K. Frankel, on the other hand, thought such agencies should be used only for the handicapped and that insurance against unemployment and old-age pensions should be established. Under Reports on New York Institutions, farm colonies for vagrants, improved institutional care for inebriates, homes for semi-delinquent men and boys, after-care for discharged prisoners, study of atypical children in school as a preventive of insanity, prophylactic work in cases of alcoholism and venereal diseases, less crowding in insane hospitals, and better sanitation were advocated. Fresh Air Charities were shown to number 138, all engaged in getting different classes to the sea shore or to the country for brief spells of recreation and recuperation.

Other State conferences were held at Frankfort, Kentucky, Lincoln, Nebraska, and Camden, New Jersey, in February; at Hartford, Connecticut, and Mankato, Minnesota, in March; at Marion, Indiana, in September; at Chicago, Illinois, Portland, Maine, and Pawtucket, Rhode Island, in October; at Des Moines, Iowa, Frederick, Maryland, Chillicothe, Missouri, and Altoona, Pennsylvania, in November.

**BEQUESTS.** *The Rockefeller Foundation.* In March a charter was sought from Congress for a corporate body consisting of John D. Rockefeller, John D. Rockefeller, Jr., Frederick T. Gates, Starr J. Murphy, Charles O. Heydt, and such other persons as they might associate with themselves, to be known as the Rockefeller Foundation. This body was to have power to choose its successors in perpetuity. It was generally understood that Mr. Rockefeller was to endow it with a sum immensely larger than any yet devoted to social uplift. The purpose was stated thus: "To promote the well-being and advance the civilization of the peoples of the United States and its territories and possessions and of foreign lands in the acquisition and dissemination of knowledge; in the prevention of suffering; and in the promotion of any and all the elements of human progress." The charter sought exempted the foundation from taxation.

The wide discussion of this proposal and the uncertainty regarding its real purposes and probable effects caused hesitation in Congress in granting the charter. *The Survey*, the leading philanthropic journal, led the demand for limitations of the charter privileges. It suggested that the government be given a voice in the selection of trustees; that the corporation be required to spend its income so as to prevent an indefinite increase in its endowment; and that by the end of say 100 years the entire project be brought to an end by the expenditure of the endowment itself. Upon the opening of Congress in December Senator Gallinger offered the following amendments: that the successors to the incorporators be chosen by the President of the United States, the Chief Justice of the Supreme Court, the President of the Senate, the

Speaker of the House, and the presidents of Harvard, Yale, Columbia, Johns Hopkins, and the University of Chicago; that Congress have power at any time to impose limitations on the objects of the corporation; that the endowment shall not exceed \$100,000,000; and that after 100 years Congress may direct the corporation to distribute the principal of its endowment. The charter had not been granted by the close of the year.

*The New York Foundation.* This institution was chartered to "promote charitable, educational and philanthropic enterprises." It was endowed by Alfred M. Heinsheimer with \$1,000,000, which had been previously offered by his brother to the Jewish charities of New York on condition that they form a federation. The trustees, besides the donor, are Morris Loeb, Paul M. Warburg, Jacob H. Schiff, and Isaac N. Seligman.

**OTHER COUNTRIES.** *The Eleventh Annual Canadian Conference of Charities and Correction* met at Guelph, Ontario, in July. In speaking of wayward women Miss Brooking of a Toronto maternity hospital stated that more than one-half the unmarried mothers treated there were feeble-minded. The criminal, the curative work of the Guelph Farm Colony, the crusade against tuberculosis, sex instruction for boys, intemperance were discussed. The conference adopted a resolution favoring medical certification of physical and mental fitness for marriage; and one on the necessity of making parents responsible for the criminality of children under twelve years. The 1911 session will be held at Hamilton.

**GREAT BRITAIN.** Nowhere else is the problem of poverty being dealt with on such a large and far-reaching plan as in Great Britain. The report of the Royal Commission on Poor Laws and the Relief of Distress, submitted in 1909, brought forward many issues. The majority and minority reports agreed in desiring prevention in place of relief and in making unemployment largely responsible for poverty. But the majority would change the existing system of administration only slightly while the minority advocate breaking up the entire system. The Development Bill, designed in part to provide public work in afforestation, highway and other improvements, and the Labor Exchanges (q. v.) opened in February, were part of the plans for relieving unemployment. But it was shown by the minority that only one-tenth of those seeking public aid were able-bodied. Nine-tenths were aged, sick, physically unfit, children, or widows with children. Old-age pensions have provided for the aged, but the treatment of others has been left unchanged.

*The National Committee for the Prevention of Destitution*, headed by Sidney and Beatrice Webb and having 30,000 members, is seeking to secure laws that will revolutionize the treatment of poverty in Great Britain. The active propaganda of this Committee is in support of a prevention of destitution bill introduced in Parliament in April, representing the views of the minority of the Royal Commission. Whereas both majority and minority would abolish the workhouse, the former would substitute a number of hospitals and asylums run by poor-law authorities, while the minority would turn these dependents over to the health, education or other authorities. The latter would avoid duplication of authorities performing the same func-

tions. The minority would reduce indoor care to a minimum; and for outdoor relief put children under the educational authorities, which now partially feed, clothe and give them medical attention; the aged under the pension, and the sick under the health authorities. These authorities would be given the responsibility also of searching out prospective destitution and preventing its full development; they could enforce treatment for industrial diseases, to be paid for by the beneficiary, if able. Both majority and minority would have the community assume full responsibility for the support of widows and their children under fifteen years of age. The minority would admit all old persons and wage-earning widows to the old-age pension lists. The educational and political campaign carried on by the National Committee in behalf of these proposals has been remarkably successful in enlisting popular support; this is a long step toward Parliamentary action.

*The International Congress of Public Relief and Private Philanthropy* held its fifth session at Copenhagen in August, under the presidency of ex-President Loubet of France. All European countries and the United States were represented by 400 registered delegates, those from France and Denmark being most numerous. Public officials predominated over the representatives of private charities. The plan of the Congress is to prepare several topics each to be reported on by persons from a great many countries. These individual reports are summarized and printed beforehand, the sessions being devoted mainly to debate. The topics in 1910 were: Sick Nursing in Country Districts; the Relief of Foreigners; Women's Participation in Public Charity; and Relief of Widows with Children. There was a special address on International Protection and the Rights of Destitute Children.

**CHARITY ORGANIZATION.** See CHARITY.

**CHARLTON, JOHN.** A Canadian publicist, died February 11, 1910. He was born in 1829. He was for 32 years a member of the Canadian Parliament. He consistently urged friendly relations between Canada and the United States, including free trade between the two countries. In 1898 he was a member of the Joint High Commission appointed to settle disputes and remove trade obstacles between Canada and the United States.

**CHARTER REFORMS.** See INITIATIVE AND REFERENDUM; MUNICIPAL GOVERNMENT.

**CHARTRES, Duc de.** See DE CHARTRES, ROBERT LOUIS PHILIPPE, DUC.

**CHARTS, ERRORS IN.** See EXPLOitation and TERRESTRIAL MAGNETISM.

**CHATTERTON, E. K.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**CHATTERTON, HEDGES EYRE.** An Irish jurist, died August 30, 1910. He was born at Cork in 1819 and educated at Trinity College, Dublin. He was admitted to the bar in 1843. He was appointed solicitor-general in 1866, attorney-general in 1867 and from the latter year to 1904 was Vice-Chancellor of Ireland. He made a great reputation in the State trials of 1867 when he conducted the indictment of the Fenian leader, Colonel Burke. He was one of the ablest advocates and special pleaders at the Irish bar of his day.

**CHAUFFEURS' LICENSES.** See AUTOMOBILES.

**CHAUTAUQUA INSTITUTION.** A system for the advancement of popular education, founded at Chautauqua, N. Y., in 1874 by John H. Vincent and Lewis Miller. The local work of the Institution is done in connection with a summer assembly in a series of summer schools. The year 1910 was notable on the programme side for the continuance of the usual general symposia, the chief topics of interest being "Health and Efficiency," "Contemporary Conditions in England," "The Christian Life" and "American Immigration." A new and brilliantly successful feature was an historical pageant in connection with the local history of the region and presenting certain scenes in Indian occupation leading up to the conquest of the French and culminating in the presentation of "The Little Father of the Wilderness" by Mr. Francis Wilson and a voluntary company of professional actors. The summer schools had the most prosperous year in their history and were strengthened by the successful inauguration of a rather extensive free scholarship system which in 1910 contributed in whole or in part to the expenses of nearly seventy public school teachers. To this end the investment of several thousands of dollars was made in rebuilding and remodelling and the generous contribution from friends of Chautauqua supplied the actual scholarship funds. Plans for considerable extension of this campaign are assured for the future.

**CHAUVET, J. A. EMMANUEL.** See NECROLOGY.

**CHAVEZ, GEORGES.** See AERONAUTICS.

**CHEBROUX, ERNEST.** See NECROLOGY.

**CHEESE.** See DAIRYING.

**CHEMICAL DENUDATION.** See GEOLOGY.  
**CHEMICAL ENGINEERS, INSTITUTE OF.** See CHEMISTRY.

**CHEMICAL SOCIETY, AMERICAN.** A scientific society founded in 1876. It had in 1910, 5100 members, including nearly all the prominent American and many foreign chemists. Annual meetings are held and the meeting of 1910 was held December 27-30 at Minneapolis. The Society met in six divisions and three sections as follows:—Divisions: Agricultural and Food Chemistry; Fertilizer Chemistry; Industrial Chemists and Chemical Engineers; Organic Chemistry; Pharmaceutical Chemistry; Physical and Inorganic Chemistry. Sections: Biological Chemistry; Chemical Education; and Chemistry of India Rubber. The Society publishes the *Journal of the American Chemical Society*, of which 32 volumes have been issued. It is published monthly. The officers for 1910 were: President, Wilder D. Bancroft, Cornell University; Secretary, Charles L. Parsons, New Hampshire College, Durham, N. H.; Treasurer, Albert P. Hallock, of New York City. See CHEMISTRY.

**CHEMISTRY. GENERAL PROGRESS.** In view of the great mass of chemical research published during the year, the present sketch can only be, as in previous years, extremely fragmentary. Nevertheless, it is believed that the few typical contributions selected will serve to give the non-specialized student a glimpse into the principal lines of work currently engaging the energies of the hosts of chemical investigators.

Debierré, the well-known discoverer of the radio-active element actinium, succeeded in deter-

mining the atomic weight of the radium emanation. Debierne's paper forms one of the most beautiful experimental contributions published in the course of the year. Since the emanation forms no chemical compounds, its atomic weight, like that of argon, could only be found by determining its density. Ordinarily, the determination of the density of a gas presents no particular difficulty, that is, when there is a considerable amount of the gas available. In the case of the emanation, however, the amount is exceedingly slight, and the difficulty of measuring its density is correspondingly great. All ordinary methods, involving determinations of both the volume and weight of gas, are entirely out of the question. Debierne made use of the method originally invented by Bunsen and not infrequently used for rapid measurements by industrial chemists in illuminating-gas works. The method consists in allowing the gas to escape from one chamber into another through a fine pinhole and measuring the rate of escape. The rate of escape informs us of the density of the gas, from which the molecular weight may be readily computed. In the case of the emanation, as in that of argon, helium, and the other monatomic gases, the atomic weight is simply equal to the molecular weight. But Bunsen's method, too, involves the employment of considerable amounts of gas, and Debierne's contribution consisted primarily in so modifying and refining Bunsen's method as to render it usable with very small amounts. Debierne finally succeeded in transferring one cubic millimetre of the emanation into one of the two chambers of his apparatus, closing it up under a pressure of only one one-hundredth of a millimetre of mercury, then establishing pinhole communication with the second chamber, in which the pressure was continually maintained with the aid of a rapid-acting mercury pump, as near zero as possible. The atomic weight of the radium emanation thus found was 220. According to theory, the atomic weight should be 222.5, that is, four units less than 226.5, which is the atomic weight of radium itself. Considering the great difficulty, experimentally, of the determination carried out by Debierne, the agreement between theory and experiment must be considered extremely satisfactory.

**ISOLATION OF RADIUM.** Another contribution published in course of the year by Debierne, together with Madame Curie, consisted in the isolation of radium itself, for the first time, in the metallic state. A solution of one-tenth of one gram of pure radium chloride was electrolyzed, with ten grams of metallic mercury as the cathode. The radium thus produced formed an amalgam with the mercury. The amalgam was transferred to a small iron boat, placed in a tube of quartz, and subjected to distillation, after the air had been completely pumped out of the tube. As the mercury distilled out, the temperature was allowed to rise higher and higher. The mercury was gone below 700° C., and pure radium remained behind. It formed a shining white residue in the boat, melted at 700° C., was rapidly altered by air, energetically attacked water, forming a soluble oxide of radium, and having altogether the radio-active properties that it was expected to possess.

**DIRECT DETERMINATIONS OF OSMOTIC PRESSURE** were continued during the year in several laboratories. To recapitulate briefly the main facts

connected with this subject, it has been known for many years that if membranes through which water alone can pass, but which are impermeable to substances that may be dissolved in the water—if such membranes are interposed between some solution on the one hand and pure water on the other hand, the pure water will pass through the membrane into the solution and render the latter more and more dilute. The force which thus drives the water into the solution has been named "osmotic pressure." A membrane like the one just described is called a "semi-permeable membrane." Many animal and plant membranes are semi-permeable, whence the important role played by osmotic phenomena in life processes. About forty-five years ago Traube found that an artificial semi-permeable membrane could be made from copper ferrocyanide. Measurements of osmotic pressure were first carried out by Pfeffer in 1877. About ten years later van't Hoff discovered the relationships of osmotic pressure and described them in a remarkable paper, which constitutes one of his chief titles to fame. The van't Hoff theory permits of calculating the osmotic pressure corresponding to a solution of given strength. It further shows that osmotic pressure depends only upon the nature and concentration of the dissolved substance, but is independent of the membrane that happens to be employed: with an ordinary membrane of copper ferrocyanide one ought, according to the theory, to find exactly the same osmotic pressure as by using a membrane made, for instance, of hog's bladder. The finest experimental work in connection with this theory has been carried on for a number of years by Professor Morse and his students at Johns Hopkins University, and the results are in excellent agreement with the van't Hoff theory. Another investigation, which has likewise lasted now for several years and is not yet completed, has been carried on at the University of Wisconsin by Professor Kahlenberg and his students. Instead of using water as a solvent, as did Pfeffer, and as Morse is still doing, the Wisconsin experimenters used pyridine, and in this they dissolved such substances as common sugar, as well as inorganic salts. Their semi-permeable membrane was made of rubber. Working under these conditions about five years ago, Kahlenberg found an osmotic pressure very much smaller than the one required by the van't Hoff theory. In fact, the observed osmotic pressure was only a small fraction of the theoretical. From this Kahlenberg boldly drew the conclusion that the celebrated van't Hoff theory is all wrong, or nearly so, that osmotic pressure is not proportional to the concentration of the dissolved substances, and that it does depend upon the nature of the membrane employed. In the summer of 1910 appeared a paper by Wilcox, a student of Professor Kahlenberg's describing a new series of experiments carried out, apparently, with great care. Wilcox's measurements seem to corroborate Kahlenberg's older work: Wilcox, too, found pressures that were but insignificant fractions of what he should have found in accordance with the van't Hoff theory. Considering this whole matter without any preconceived ideas in mind whatever, one would have at least to doubt from now on the validity of the van't Hoff theory; one would be almost inclined to reject it outright. If, however, one investigates the theory with due care, one finds that

it is based on practically nothing else than the law of the conservation of energy. The acceptance of the experimental data of Kahlenberg and his associates involves not merely rejection of a theory of the flow of water through membranes, with which one might dispense with no more than a sigh, but a veritable revolution in physics and chemistry, the rejection of the broadest and most fundamental principle of science—the law of the conservation of energy. With preconceived ideas of this nature in mind, one cannot help siding with the van't Hoff theory and against the Kahlenberg facts until many more years of the most painstaking experimentation might demonstrate that the Kahlenberg observations are really faultless truth.

**ULTRA-VIOLET LIGHT.** To turn to another subject of research, recent years have been gradually bringing into prominence investigation of the chemical and physico-chemical effects of ultra-violet light. As time goes on, these effects will undoubtedly form an important chapter of chemical science. By way of an example of contributions along this line may be mentioned a paper by Svedberg. With the aid of ultra-violet rays from a quartz mercury lamp, Svedberg succeeded in producing colloidal solutions of metals. The surface of the metals is simply cleaned free from oxide and covered with a solvent. A few minutes' exposure suffices to produce the desired effect in the case of lead, tin, copper and silver, and in such liquids as water, alcohol, acetone, and other organic solvents.

Another series of experiments on the *chemical effects of ultra-violet light* was carried out by Thiele at the technological institute of Dresden, Germany. The following are a few of the results: First, the combination of hydrogen and oxygen was investigated at the ordinary temperature. Ordinarily, the two gases refuse to combine with any appreciable velocity unless they are heated. When perfectly dry, they refuse to combine even at high temperatures. The presence of a trace of moisture greatly catalyzes, that is, hastens the reaction. When, however, a mixture of the two elements is exposed at the ordinary temperature to the action of ultra-violet light, the two combine readily into water. Curiously enough, under these circumstances the presence of moisture does not hasten, but slows up the reaction. Evidently, the mechanism of the reaction in the presence and in the absence of ultra-violet light is entirely different. Another case investigated by Thiele was the action of oxygen upon hydrochloric acid. In the absence of ultra-violet light no action can be detected unless an appropriate chemical catalyzer is added. In the presence of ultra-violet light the hydrochloric acid is rapidly oxidized to water and free chlorine. Similarly, aqueous hydrobromic acid exposed to ultra-violet light in the presence of air rapidly turns brown, owing to separation of free bromine. Hydrogen peroxide is decomposed by ultra-violet light with great rapidity. When a solution of the white of a hen's egg was exposed to ultra-violet light, it soon turned yellow and began to smell like scorched nitrogenous matter. The extent of the importance of such researches will be clear if one bears in mind the great rôle played in the economy of nature by the chemical action of sunlight, which contains, of course, a considerable proportion of ultra-violet rays.

The possibility of applying ultra-violet light to immediate use is pointed out by a communication made to the French Academy by Victor Henri and two collaborators, Helbronner and Recklinghausen. Henri has for some time been studying the action of ultra-violet light upon various micro-organisms. The action appeared to be in almost all cases a powerfully destructive one and so the possibility suggested itself of utilizing ultra-violet light for the purification of water on a large scale. The experiments published in the course of the year by the three French investigators were altogether promising. Water containing large numbers of germs and colon bacilli (between 30 and 800 germs per cubic centimetre and from 50 to 100 colon bacilli per litre) was roughly filtered for the purpose of rendering it clearer and hence more accessible to the action of light; then it was caused to circulate through a special apparatus in which it was exposed to the light from a Cooper-Hewitt mercury lamp of quartz. The water was allowed to run rapidly, 25,000 litres passing through the apparatus per hour. The emerging water was absolutely free from colon bacilli and practically free from germs.

**STEREO-CHEMISTRY.** An interesting contribution to stereo-chemistry was published by Perkin, Pope, and Wallach. Organic stereo-chemistry was originally founded by van't Hoff upon the doctrine of the asymmetric carbon atom. An "asymmetric" carbon atom is defined as a carbon atom linked to four other atoms, or four groups of atoms, different from one another. According to stereo-chemical theory, a compound containing one or more asymmetric carbon atoms must rotate the plane of polarized light, and conversely, every compound that rotates the plane of polarized light must be expected to contain one or more asymmetric carbon atoms. It has been realized for some time that this principle is not strictly true, that the necessary and sufficient condition for the optical activity of a compound is that its molecule, considered as a geometrical body, shall be unsymmetrical, and that the presence of an asymmetric carbon atom, while generally an indication of molecular asymmetry, is not a necessary condition of it. Experimentally, however, no clearly defined case was known of a compound rotating the plane of polarized light and yet having an asymmetric carbon atom in its molecular. During the year, Perkin, Pope, and Wallach succeeded in preparing such a compound—a contribution which was greeted with pleasure by all those interested in the working of the atomic and molecular theory. The compound in question is termed, in the more recent system of nomenclature, 1-methyl-cyclohexylidene-4-acetic acid. In the older nomenclature, which may be more intelligible to some people, it might be called paramethyl-pentahydro-phenyl-acetic acid. Its formula is  $\text{C}_8\text{H}_{12}$ :  $\text{CHCO}_2\text{H}$ . As first prepared from optically inactive compounds, the substance was, of course, optically inactive. With the aid, however, of the hydrochloride of the alkaloid brucine, the investigators succeeded in breaking up the substance into two components of equal and opposite rotation. In their paper they justly call attention to the fact that the new compound furnishes independent proof of the high reliability of the structural formulæ of organic chemistry as atomic pictures of the compounds represented by them.

Another line of research, of no small import-

ance to organic stereo-chemistry, but unfortunately fruitless as yet, has consisted in attempts to prepare substances rotating the plane of polarized light from optically inactive materials with the aid of circularly polarized light. The problem is a fascinating one in itself and has, besides, important biological bearings. Just as in biology it is now accepted as a general principle that there is no such thing as spontaneous generation, that all life comes from other life that has existed before it, so it is accepted as a fundamental principle of stereo-chemistry that an optically active substance can only be derived from another optically active substance or, as it may be stated, that the spontaneous generation of optically active substances is an impossibility. Now, the body of all animals and plants, chemically considered, is full of optically active substances. For instance, the various sugars, starches, celluloses, and albumens are all optically active. While, then, the biologist is asking how the first life originated on our planet, the chemist raises the parallel question as to how the first optically active substance had come into existence. The only hypothesis that the biologist has as yet been able to advance in answer to his question is that the first life germs have come here from other worlds. In answer to the parallel chemical question, it has been suggested that an optically active substance may be formed from an inactive material under the influence of circularly polarized light, that is, ordinary light all of whose rectilinear vibrations have been changed into circular vibrations, with the circular motion being, furthermore, all in the same direction. Such light has been known to appear at times in nature, hence, if the chemists should succeed in artificially producing an optically active substance by means of such light, the mystery of the origin of active substances on earth would disappear. No wonder that in spite of repeated failures new attempts are made every year in this direction. During the year, Padua, working at the University of Bologna, in Italy, examined the *a priori* promising case of the action of bromine upon angelic acid. The latter substance is itself optically inactive. The dibromotiglic acid resulting from the action of bromine upon angelic acid would undoubtedly rotate the plane of polarized light if it were produced in the body of some animal or plant. But when Padoa prepared it artificially in a stream of circularly polarized light, it was absolutely inactive, one might say "optically dead": one more unsuccessful attempt.

**COLOR OF DYE STUFFS.** A problem of very great importance in organic chemistry is to ascertain the cause of color of dye stuffs. To the chemist this problem means, to ascertain just what composition and molecular structure are necessary and sufficient to produce color. From a practical view-point, this problem solved, the chemist could produce innumerable dyestuffs as yet undreamt of, possessing perhaps any desired hue or shade, and including many of high industrial value. From a purely scientific view-point the solution of such a problem, interesting as it is in itself, may quite possibly lead to the unveiling of altogether new treasures of knowledge, as yet completely hidden from view. For did not the hunting up of a peculiar photographic property of pitchblende by Monsieur and Madame Curie lead to the creation of one of the most marvelous branches of human knowl-

edge? To return to the question of the color of dyestuffs, a theory which was widely accepted for a number of years was Witt's so-called "chromophore theory." According to this, color is caused by the presence of "chromophores," that is, of certain atomic groups, such as the carbonyl, nitro, nitroso, and azo groups, and especially of double bonds. Another theory in vogue is the quinone theory, which considers a quinone-like union of atoms essential for color production. Both of these theories have been of the greatest value in the synthesis of dyestuffs but neither can be said to define clearly the actual cause of color, and recent investigations have shown both to be decidedly insufficient. So we find in the current literature of chemical research a considerable number of contributions attempting to develop a more adequate theory. In the front rank of workers along this line we find Professor Hantzsch and his students, at the University of Leipzig. Hantzsch believes that color is due, not to the presence of some chromophore group of atoms, but to the presence of a pair of groups of no great chemical stability, with a hydrogen atom capable of migrating from one to the other and back, and thus changing the composition and structure of either group. Since the chemical change thus involved consists only in a rearrangement of atoms, unaccompanied by a change in the composition of the substance as a whole, the two resulting substances are obviously isomeric. Furthermore, since the change is readily reversible, the substance may be considered as "tautomeric." Of this tautomeric pair, one substance is colorless, the other is colored, and either readily passes into the other. Plainly, Hantzsch's theory contains in it no essentially new concept: it is merely a modification, a refinement of Witt's chromophore theory. But this does not make it less valuable. Hantzsch calls the colorless substance and colored isomer "chromo-isomers"; their mutual transformation or, more precisely, the transformation of the colorless into the colored form he terms "chromotropy." A direct confirmation of Hantzsch's theory was obtained by Hantzsch and Gorke in the case of ortho-nitro-phenol: this substance yields a methyl derivative (ester) that is colored. What is the cause of the color? According to Witt's theory, the color is due to the presence of the nitro-group. According to Hantzsch, theoretically, there ought to be two tautomeric methyl derivatives—one colored, the other colorless. As a matter of fact, Hantzsch and Gorke succeeded in actually isolating two methyl esters of ortho-nitro-phenol, one colorless and the other red. Following in Hantzsch's steps, Willstätter also discovered a pair of tautomeric ortho-benzo-quinones, of which one is colorless and comparatively unstable, the other is colored and stable. In certain cases both chromo-isomers may be colored. A mixture of the two in different proportions ought then to yield substances of all possible shades of color, varying from the pure color of the one isomer to that of the other. In accordance with this inference from Hantzsch's theory, certain alpha-oximino-ketones, such as di-methyl and di-phenyl violuric acids, are capable of yielding salts of every imaginable color. To this phenomenon Hantzsch applied the name "pantochromism." The relative proportions of the two chromo-isomers co-existing and holding balance to each other must

be expected to vary from solvent to solvent. As a matter of fact, Hantzsch's pantochromic salts yield differently colored solutions in different solvents. This fact might be accounted for on two different principles: first, it might be due, in accordance with Hantzsch's theory, to different arrangements of the atoms within the separate molecules, the outward difference resulting from different proportions of the two kinds of molecules present, but, on the other hand, it might also possibly be due to different combinations of molecules of one and the same kind among themselves. In other words, according to Hantzsch's assumption, the cause is intra-molecular; according to the alternative assumption, the cause is extra-molecular or, more precisely, inter-molecular. To decide between the two possible explanations, Hantzsch undertook to investigate experimentally, whether there are at all any poly-molecular complexes in solutions of pantochromic salts. The result was decidedly negative: these solutions contained nothing but simple molecules, and hence the cause of their different appearances can only lie within the molecules themselves. In conclusion, it may be stated that this work of Hantzsch's, together with a variety of observations published by Thiele, Baeyer, Stieglitz, Acree, and others, has in very recent years all but disproved the celebrated Ostwald theory of indicators, which was widely and confidently taught but a short time ago, and in accordance with which the color, for instance, of phenol-phthalein in alkaline solution is due to the phenol-phthalein ion being red, while the undissociated substance happens to be nearly colorless.

No account of recent work on the connection between the color and constitution of organic substances would be complete without at least some mention of the views and contributions of Baly, Stewart, and Desch. Investigators of this school go a step further than those of Hantzsch's. They believe that color is due, not to some chromotropic isomer of a substance containing a chromophore group, but to the chemical action involved in the incessant mutual transformation of the two isomers. Such transformation may involve, as already indicated above, the migration of a hydrogen atom from one group to the other and back, constituting the phenomenon of tautomerism proper. In certain cases, however, it may only involve the oscillation of a valency, in which cases Baly would call the phenomenon "isorropesia." Examples of such cases are presented by di-acetyl and by quinone itself. Now, whether a given case be one of true tautomerism, or one of isorropesia, color, according to the Baly-Stewart school, is due to the rapid oscillatory motions going on within the molecule and immediately causing the absorption of light of certain wave-lengths. Any attempt at a critical estimate of the relative merit of the views of the different schools would be out of place in a brief account, especially in the present raw and unfinished state of the investigations. It must, however, be said that the views of the English school seem to possess an unusually promising penetration and illuminating power.

Among the contributions published during the year must, finally, be mentioned a series of papers presented in September, 1909, at the 20th Anniversary Celebration of Clark University in Worcester, Mass., by a number of leading American investigators. Practically all

American chemical research laboratories were represented at the Clark conference, and each investigator presented a summary of his researches. The papers were gradually published in the course of 1910 in the *Journal of the American Chemical Society*. The complete set will also appear in the form of a separate Celebration volume early in 1911 and will form a first-hand history of the chemical research carried on in America in our own days. Looking over the splendid material of this volume, one cannot help feeling the truth of Ostwald's prophecy, that the centre of gravity of science is bound to move from Europe across the Atlantic and introduce a new and remarkable era in American history. See ATOMIC WEIGHTS.

**CHEMISTRY, INDUSTRIAL.** The progress in the development of industrial chemistry persists with unabating zeal, and the records of recent years are fully equalled by that of 1910. In two important subjects has there been considerable activity. Improved methods for the extraction of radium, affording greater opportunities for the use of this element; and the synthesis of rubber, the natural sources of which seem inadequate to the demand, are the important features of the progress of the year.

**ORGANIZATION.** The American Chemical Society, now the largest Chemical Society in the world with a membership of over 5100, held two general meetings during the year. The first was in San Francisco, Cal., during July 12-15, and the second in Minneapolis, Minn., during December 28-31. Its president is Wilder D. Bancroft, of Cornell University. The Perkin medal was given to E. G. Acheson of Niagara Falls in recognition of his invention of carborundum, siloxicon, etc. A Willard Gibbs gold medal has been established by William A. Converse for the best paper or address presented before the Chicago section, and is to be awarded annually. The American Institute of Chemical Engineers held two meetings during the year, one at Niagara Falls, Ontario, during June 22-24, and the other, the annual meeting, in New York City during December 7-10. Its president is Charles F. McKenna. On the retirement of Prof. Charles F. Chandler from the chair of chemistry in Columbia University his students presented to the trustees of the University in his honor a fund to be known as "The Charles F. Chandler Foundation," the interest of which is to be devoted each year to defraying the expenses of one or more great public lectures on chemistry or some of its applications. The 29th annual meeting of the Society of Chemical Industry of Great Britain was held in Glasgow on July 6-8. On this occasion the Society's medal was presented to Thomas Tyrer for his services to industrial chemistry.

**METALS.** The decay of tin hitherto observed is now further described as "catching." A consignment of tin sent from Rotterdam to Moscow in 1877 arrived at the latter place in the form of powder. This alteration is said to be due to a change in the internal crystalline structure of the metal, and may be described as analogous to the slow transformation of monoclinic sulphur to rhombic sulphur. This seems to explain why articles of tin of archeological interest are so seldom found. Cohen described a rare form of tin disease which may be called "strain disease" and which may be caused by shocks, compression, or any strain to which the metal may be subjected. Conversion into this state is ac-

celerated by contact with metal that is already in this condition, while melting reconverts it into the normal state.

Among the newer uses to which aluminum is being put is its adoption for minor coins. This has been frequently recommended in the past, but it has remained for France actually to replace the bronze 25, 10 and 5 centimes pieces with new coins made of aluminum. In discussing the use of this metal for coinage, the French authorities took into consideration the cost, malleability, weight, and durability of the white metal and agreed that aluminum fulfilled the requirements most satisfactorily.

Newer uses for other metals are constantly being found. Tantalum is now being employed in the manufacture of dental instruments, and it is reported from Germany that not only are such instruments cheaper, but they do not rust when exposed to the air, also they retain their polished surfaces longer and are more lasting than steel instruments. The monazite sands from Brazil and from South Carolina are now sent to Germany where they are largely used to manufacture thorium nitrate, a substance employed in the making of incandescent gas mantles. Tungsten ores from Spain are meeting with greater demand, and deposits of wolframite that had been abandoned are now being worked again. The output goes to Germany where the ores are smelted and the metal finds use for making high speed tool steel, also for motor cars, and in the manufacture of electric lamps. The supply of the mines in Argentina is also shipped to Germany. The demand for tungsten for incandescent lamps has resulted in the production of ductile tungsten which is described as a bright, tough, steel-colored metal which can be drawn into the finest wire, much below 0.001 inch. The tensile strength of the wire increases as the drawing proceeds, that is the more the metal is mechanically worked the tougher it gets. Similar results have been obtained with molybdenum, a metal for which, however, the commercial demand has thus far been but slight.

**IRON AND STEEL.** It is reported from Pittsburgh that in the mills at Homestead by a process recently discovered the ore dust is to be made into briquettes and utilized in making pig iron. It is claimed its use will effect a reduction in the cost of pig iron. The dust, under the tremendous pressure of the blast, is caught at the top of the furnace, and then carried to the base of the stack, to be carted away. The demolition of a "skyscraper" in New York City during the summer months led to the critical examination by an expert of the condition of the steel. He found the steel generally to be in a good state of preservation, although some rivets were corroded. The paint used to "preserve" the steel, made of pure linseed oil, had entirely disappeared, owing to chemical action with the mortar. The main feature of the preservation of the steel was the fact that the columns were encased in brick and a rich mortar or grout came in contact with the metal. Wherever there was insufficient contact between the grout and the steel, rust formed; but as the construction of the building was such that moisture was very largely excluded, there were only two or three instances where bad rust pitting took place. The great lesson to be learned from the examination of this steel is the fact that cement mortar one inch thick around a column

of steel is the best preservative. Linseed-oil paint should not be used, for there are alkali-proof paints which at the same time electrically insulate and serve a better purpose. A non-rusting iron called "ingot iron" is now a commercial product. It is described as an iron made as nearly pure as possible. Chemical analysis shows it to contain sulphur, 0.005 per cent., phosphorus, 0.005 per cent., carbon, 0.021 per cent., and manganese and silicon, a trace. It is recommended for use in ground where it may be attacked by dampness, in localities where it becomes the intermittent conductor of electrical currents, at the seashore where it is attacked by salt air, or in cities where the atmosphere is impregnated by fumes of gas and coal smoke. A new rust-proofing process for iron and steel is announced in England. The article is boiled in 1 gallon of water to which is added 4 ounces of phosphoric acid, and 1 ounce of iron filings. A black non-corroding coating is produced.

**ALLOYS.** Among the new alloys reported is one to which the name "Clarus" is given. It is made commercially in Birmingham, England. Clarus is made of aluminum and it is claimed for it that it is at least 60 per cent. stronger than ordinary aluminum and that its weight is one-third that of brass; that it will take a very high polish, equal to that which can be obtained with silver; that atmospheric surroundings do not cause it to tarnish; that castings are not brittle, but can be bent cold; that it is suitable for castings of any size, and that in all circumstances such castings have been found to be sound and free from blowholes and other defects. The new alloy is said to be suited for automobiles and for electric railroad, railroad car, and aeroplane fittings. Also from Birmingham is "Duralium," which is said to be slightly heavier than aluminum and as strong as steel, so that it can be rolled, drawn, stamped, extended, or forged at suitable temperatures; and it is less corrosive than other high aluminum alloys under the usual corrosion tests. It is expected that duralium will find a demand for aviation uses, and in the construction of motor cars, owing to the difficulty of securing aluminum castings sufficiently reliable not to break under the strain of sudden jars and shocks caused by quick stoppages, changes of speed, and jolts upon bad roads.

From Germany comes "Ruebel bronze," an alloy, the main ingredient of which is magnesium. This metal in its pure state is unfit for metallurgical purposes, as it is soft and susceptible to atmospheric and chemical influences. Magnesium loses these properties if only small quantities of other metals are added to it. Zinc, copper, and aluminum are added in this new invention in varying quantities, resulting in a fine-grained, homogeneous alloy of considerable strength and low specific gravity. This new alloy is of importance in constructing air ships.

The alloy of cobalt and chromium, called "stellite" by its inventor, has been described as of value for cutting purposes. Blades made from the alloy take a fine cutting edge, which is particularly smooth, though capable of excellent cutting qualities. A razor made of the cast material had been employed for nearly two years, and had been used for shaving purposes hundreds of times without showing any signs of wear. A lathe tool made from stellite, with

certain modifications, is capable of cutting ordinary steel at a very high rate of speed. A test was made against high-speed steel, and it was found that the stellite tool would cut a continuous shaving from the bar at the speed of 200 feet a minute, while the high-speed alloy steel tools failed almost instantly.

**RADIUM.** Much interest has been manifested in the exploitation of this rare element during the year. The institute founded in Vienna, Austria, was formally opened in November when its director, Prof. Franz Exner, announced that it would be entirely devoted to research into the physical and chemical properties of radium. The problems that will be studied first are the establishment of a standard for the content of radium in radioactive substances, an exact determination of the atomic weight of radium, and the examination of mineral waters and rocks believed to contain radium.

The Austrian government has established a sanatorium with hotel and bathing accommodations in Joachimsthal, Bohemia, where the water of the river Tepi is believed to be strongly impregnated with radium. These waters have been reported as affording relief in cases of rheumatism, uric acid poisoning, nervousness, neuralgia, and old exudations of various kinds.

In England the British Radium Institute, founded in 1909 for the purpose of loaning that precious element to scientists and physicians, had made for it a safe for the storage and protection of radium. This was constructed of lead, which is said to be the only element capable of withstanding the great penetrating power of the radium emanations, and in order to prevent the escape of these emanations when the door is opened, two valves have been fixed in it through which tubes of mercury will be passed to collect and retain any escaping emanations. The cost of radium according to Sir William Ramsey is now \$2,100,000 an ounce, which is considerably less than the amount (\$3,000,000) reported last January. This reduction in price is attributed to the discovery of larger deposits of pitchblende containing radium in Cornwall, England, and the establishment of a factory in Limehouse, London, where by an improved process commercial radium is obtained in two months as compared with a year required by the methods used in Joachimsthal. It is claimed that before long England will be the chief producer of radium. It is estimated that the total stock of radium now in the world is about four ounces.

The usual commercial product known as radium is in reality one of its salts, usually the bromide. By following the process used in 1807 by Sir Humphrey Davy for the reduction of the alkaline elements, Madame Curie and E. Debiere announced in September, 1910, that they had isolated pure radium. They prepared an amalgam of mercury by the electrolysis of a radium salt. This amalgam was placed in a quartz tube and distilled by hydrogen under pressure and high temperature. The mercury was then found to have left a thin coating of a brilliant white metal which proved to be radium. The metal acts with great energy; it decomposes water, oxidizes rapidly in air, is attracted by iron as though by some magnetic property, and burns paper when placed in contact with it. Announcement was made earlier in the year of the isolation of polonium by Madame Curie, who found that it had a radioactivity superior

to radium, although radium conserves its energy for an indefinite period while that of polonium disappears rapidly.

**SYNTHETIC SAPPHIRES.** In 1910 announcement was made of the discovery of synthetic sapphires. Synthetic rubies, that is crystallized aluminum oxide colored red, were first announced in 1893 but other colors seemed to resist all efforts for their production. A. Verneuil has successfully overcome the difficulty and it is said that the new sapphires surpass the synthetic rubies in excellence. To ordinary tests no difference is apparent between the natural sapphire and the synthetic variety, only to the expert with a microscope are minute differences detectible.

A desposit of peridots has recently been discovered in Alexandria, Egypt. These stones, which are amber in color, for many years have been found in large quantities in Upper Egypt, but never before in this section of the country. The finder has uncovered several thousand of them at a depth not greater than ten feet. It is believed that the peridots were buried in the foundations of houses of the ancient Egyptians and in tombs as an omen of luck. The stones now found are estimated to have been buried for over 1500 years.

**PAPER AND FIBRE.** The search for materials from which paper can be made continues. An appropriation of \$30,000 was given by Congress to the Secretary of Agriculture for the purpose of testing such plants and woods as may require tests, to ascertain if they will be suitable for making paper. A project has been started for the manufacture of paper from Australian timber. The blue-gum wood from that country has been tested in the paper mills of Great Britain, and the result was a product said to be equal to paper made from the African esparto grass. The intention is to make better-class paper, and for this the blue gum is particularly suitable. A factory will be erected in Tasmania, and as there is an enormous supply of blue gum all through Australia there is every prospect for the successful outcome of the proposition.

The fibre of the sea plant has been identified as *Posidonia australis*. Later reports show that this fibre, cleaned and dried, possesses many valuable properties. It is not inflammable, except at a very high temperature, and for this reason has a distinct advantage over flock, kapok, oakum, etc. For bedding and upholstering purposes it has been found to have the lightness and softness of flock, while its purity and the utter absence of animal life give it great sanitary value. A mixture of this fibre with wool appears to weave into an excellent cloth, which may be dyed various colors. Other purposes for which the fibre seems adaptable are rope, string, twine, mats, linoleum, army blankets, paper; for packing fruit, eggs, etc., for export, calking decks and woodwork of ships, stuffing saddles, insulating doors to cool chambers, and packing around submarine cables.

**ARTIFICIAL CAMPHOR.** Synthetic camphor, which is one of the recent triumphs of chemistry, has had a curious experience. During the Russo-Japanese War, when the exporting of Japanese products became difficult, the price of camphor increased so that the artificial product could be manufactured profitably, and at the close of the war the Japanese hastened to take advantage of the high price and in many cases exhausted their plantations. Consequently the price fell, and at present synthetic camphor can

not compete against natural camphor; moreover as the principal demand for camphor was for the manufacture of celluloid, and as other products, especially those that are not explosive, are taking its place, the future of camphor, either natural or synthetic, is dubious. Artificial camphor is made from essential oils derived from turpentine. Chemically the only difference between turpentine and camphor is the possession by each molecule of the latter of one atom of oxygen which is lacking in the former. By chemical processes the needed oxygen is supplied. Three-fourths of the entire supply of camphor is used in the arts, chiefly in the celluloid industry, and one-fourth in medicine.

**ARTIFICIAL RUBBER.** The shortage in the world's supply and the steadily growing consumption of rubber, especially in construction of automobiles and air ships, has created so great a demand for it that prices have materially increased. To meet this demand inventors have striven to obtain a satisfactory substitute. The problem has been attacked from three points of views, as follows: actual substitutes, containing no rubber; composite rubber, in which some natural rubber is worked up with other substances; and true synthetic rubber. In the first of these the most successful results have been obtained thus far, and they consist for the most part of some oxidized, sulphured, or nitrated oil worked up with other ingredients into a solid with some elastic properties. Other substitutes are mixtures, such as bakelite (see YEAR BOOK, 1909, p153), a condensation product of formaldehyde and phenol, and they are many. The composite rubbers are compounds of rubber and such ingredients as tend to make them acceptable for some special purpose. A true synthetic rubber is the result which has attracted the attention of many chemists in recent years. It had been found that some distillation products of caoutchouc changed into rubber when treated with hydrochloric acid, consequently the study of products of the destructive distillation of rubber and similar substances has been followed. In 1882 Sir William Tilden found that isoprene could be obtained from terpenes (from oil of turpentine), and this isoprene in turn underwent a polymerization into rubber. This proposition has been denied by some chemists, but in April the directors of the Farbenfabriken-Bayer Company of Elberfeld announced that their chemists had successfully synthesized India rubber though they were not ready to undertake its commercial production. This process is said to start with oil of turpentine, from which isoprene is obtained, and the product is then treated with acetic acid which transforms caoutchouc into a soluble compound. This successful synthesis is a splendid tribute to the persistence and ability of German chemists.

**MISCELLANEOUS.** A process for the manufacture of alcohol from the waste of paper mills is reported from Sweden, where a company is now making ethyl alcohol from the residues of the sulphite. This will enable the refuse of paper mills to be utilized and the sulphite waste, heretofore thrown away and which polluted streams, can be turned into a valuable by-product.

**FERTILIZER FROM MORTAR.** From Norway comes the information that the mortar obtained from purifying sugar liquid, and which was formerly difficult to dispose of, has recently been experimentally made into fertilizer. To the mortar is added slacked lime, and by

a mixture of carbon dioxide there is secured a sediment saturated with potassium carbonate which by precipitation absorbs other organic compounds of the liquid in connection with phosphoric acid. The deposit or lime mixture is separated by filtering.

**PERMUTIT FILTERING.** A process for rendering hard water completely soft and of preventing boiler incrustations that is effective and inexpensive has been put into practical use in Germany. It consists in a rapid filtering of the water through a composition named "permutit," by which the calcium or lime, manganese, iron, and magnesium compounds, which render the water hard, as well as the microbes it may contain, are, it is claimed, wholly removed, a result hitherto unattainable outside of the laboratory of the chemist. When desired the compounding of the permutit may be such as to leave either the lime or magnesium in the water. It is also said that by permutit filtering gold can be obtained quantitatively from solutions as thin as sea water, containing 0.006 gram to the ton. Furthermore, the water filtered through permutit when used in boilers will leave no incrustations. Another important economy which is claimed for this system is the saving of fuel, the completely softened water requiring much less coal to convert it into steam than is required by hard water.

**PRESERVING WOOD.** A new method of preserving wood that has been invented and successfully employed in Australia, consists in boiling the wood and allowing it to cool and absorb a saccharine solution, after which it is dried, rendering the wood thoroughly seasoned within a few days after cutting, increasing its strength, and stopping all warping and shrinking. The sap in the wood is driven out and replaced by an antiseptic, owing to the saccharine solution boiling at a higher temperature than water, thus making the wood impervious to dry rot and to the attacks of white ants and other parasites which prey on ordinary lumber.

**RESINITE.** Resinite is a new substitute for celluloid that has been invented in Germany. It is produced in a variety of modifications by the union of formaldehyde and carboic acid in connection with certain metallic salts. This special variety is used chiefly with porous materials, such as wood, paper, pasteboard, etc., and renders them hard and impermeable. Thus ordinary pine wood, when thoroughly impregnated, becomes so hard that it rapidly dulls a planer. In another form it can be poured as a liquid into molds. After coagulation it is transparent, with ruby tint, infusible, and unaffected by ordinary chemical reagents. It is well adapted for making ornaments, such as hat-pin heads, imitation jewelry, and for most purposes where enamel or enamel varnish is employed. For doorplates, street numbers, signs, etc., it seems capable of rendering excellent service, being entirely unaffected by atmospheric action. A third modification is liquid, but upon the addition of a mineral acid, it quickly solidifies to an elastic, homogeneous substance, which can be easily cut, turned, polished, etc. In this form resinite can replace, for a multitude of purposes, horn, celluloid, vegetable ivory, and similar substances.

A smoke consumer and fuel economizer invented in Rotherham, England, is described as follows: Coal was fed into the furnace of a boiler generating steam for running the works,

with the usual emission of black smoke from the chimney; then the "consumer" was put into operation and there was only a slight trace of the products of combustion. The change is effected by an arrangement of a series of devices so placed in the flues as to intercept the smoke and cause it to be ignited by the flames of the fire. Two air circulators are so placed as to allow the desired quantity of external air to be circulated among these devices, causing the smoke to be properly ignited and consumed around the boiler flues before entering the chimney.

**CHEMISTRY, BUREAU OF.** See **FOOD AND NUTRITION.**

**CHESAPEAKE AND DELAWARE CANAL.** See **CANALS.**

**CHESS.** The principal happening in chess circles during the year 1910 was the world's championship match between Dr. Emanuel Lasker, the title-holder, and Carl Schlechter of Vienna. Lasker for the first time in his career narrowly escaped defeat. He succeeded only in tying Schlechter's score by winning the tenth and last game. Schlechter won the fifth game. All of the rest were drawn. The match took place at Vienna and Berlin. In a subsequent series at Paris Lasker defeated D. Janowski by a score of 7 to 1. Two games were drawn. Frank J. Marshall, champion of the United States, defeated J. W. Showalter of Georgetown, Ky., in a match held at Lexington, and also won the championship of the Manhattan Chess Club. At the International Congress held in Hamburg, Germany, won by Schlechter, Marshall tied with Teichmann for fifth place. The Anglo-American cable match resulted in a victory for the British team, which won  $6\frac{1}{2}$  games and lost  $3\frac{1}{2}$ . Sir George Newnes, the donor of the trophy contended for, died during the year. The Intercollegiate cable match was won by the American team, the score being  $4\frac{1}{2}$  to  $1\frac{1}{2}$ . The eighteenth intercollegiate tournament ended in a tie between Harvard and Yale. Columbia finished third and Princeton last. Pennsylvania again was victor in the Triangular Chess League tournament, Cornell winning second place. The Interstate College League, consisting of New York University, College of the City of New York and Stevens Institute, played its first series of games, New York University easily carrying off the laurels.

**CHESTERTON, G. K.** See **LITERATURE, ENGLISH AND AMERICAN, Fiction and Essays.**

**CHEVALIER, AUGUST.** See **EXPLORATION, paragraphs on Detailed Surveys of Africa.**

**CHEYSSON, EMILE.** See **NECROLOGY.**

**CHICAGO.** See **ILLINOIS.**

**CHICAGO, SCHOOLS OF.** See **EDUCATION IN THE UNITED STATES.**

**CHICAGO BUTTER AND EGG BOARD.** See **TRUSTS.**

**CHICAGO, CINCINNATI AND LOUISVILLE RAILROAD.** See **RAILWAYS.**

**CHICAGO DRAINAGE CANAL.** See **CANALS.**

**CHICAGO GARMENT WORKERS' STRIKE.** See **STRIKES.**

**CHICAGO, MILWAUKEE AND PUGET SOUND RAILWAY.** See **RAILWAYS.**

**CHICAGO UNIVERSITY.** An institution of higher learning at Chicago, Ill., founded in 1891 by John D. Rockefeller. The total number of students in 1910 was 6007 compared with 5659 in 1909. This number includes all

individuals registered throughout the year, including the summer quarter. In order to make the figures comparable with other institutions, they should be reduced to a basis in which the unit is one individual in residence nine months. The faculty numbered 280 in 1910, including about 60 assistants. In the library there are about 500,000 volumes. The most important event in the history of the University during the year was the action of Mr. Rockefeller in December in setting aside from the funds of the General Education Board \$10,000,000 to be paid in ten annual installments to the University with the request that \$1,500,000 be used for a chapel and the remainder for other purposes than endowment. This increase of Mr. Rockefeller's gifts during the twenty-one years of the existence of the University to \$35,000,000 was stated to be his final contribution, and was accompanied by the withdrawal of his personal representatives from the Board of Trustees. Mr. Rockefeller has, therefore, no further official connection with the University.

George E. Vincent, Dean of the faculties of Art, Science, and Literature, was elected in 1910 to succeed President Cyrus Northrop of the University of Minnesota, who had resigned.

The University conducts evening and Saturday courses, and correspondence study. It conducts also an academy for boys and has close affiliation with thirteen other college institutions, academies and seminaries, and official co-operation with some 200 high schools in eighteen States. The University press publishes many volumes yearly and issues fourteen publications. The receipts from benefactions during the year, exclusive of the gift of Mr. Rockefeller noted above, amounted to \$1,194,325. The total productive funds of the University amounted to \$14,902,070 and the total income to \$1,612,336. The President in Harry Judson Pratt.

**CHILD LABOR. THE REFORM MOVEMENT, MEETINGS AND PROGRAMMES.** The sixth annual conference on child labor was held at Boston, January 13-16, under the auspices of the National Child Labor Committee. The general topic of discussion was child-employing industries, especial attention being given to textile and home industries, street trades, canneries and agricultural work. Special sections of the conference were devoted to the drafting of legislation, the enforcement of laws, and to forces antagonistic to child-labor reform. In his address, John Golden, president of the United Textile workers of America, stated that Massachusetts was falling behind in the prohibition of child labor, and on this account was retarding the movement for the increased protection of the child workers in the South. He stated that children are employed because they are cheap and unresisting; that personal investigation had shown great numbers of children under twelve in the textile mills in Maine, although the law establishes fourteen as the minimum age; that many of these children were virtually robbed of much of their pay by various unfair agreements; and that rising prices made it somewhat more necessary for fathers to send their children to the factories. Mr. Charles F. Smith, a manufacturer of New Britain, Conn., stated that his experience showed that, although boys of sixteen commanded somewhat higher pay, they were relatively cheaper than boys of fourteen. Rev. John H. Holmes of New York severely arraigned the church for its indifference

to such problems. Among the reasons for this indifference he pointed to the evils of denominationalism, concern with the next world instead of this, and devotion to foreign missions. Ex-Governor Guild of Massachusetts made a strong plea for the enactment of the following amendments to the Massachusetts laws: shorter days for children of 14-16; abolition of night work for the same; health certificates for factory employes; prohibition of employment in dangerous trades; and regulation of certain street trades. Dr. Felix Adler, chairman of the National Committee, declared that the American people are inspired by "a delirium of work"; and that the fundamental reason for child labor is that the American people are exploiting themselves. Reports were presented on the progress in Pennsylvania, Louisiana, Wisconsin, Massachusetts and other States. Very great stress was laid on the need and advantages of vocational training as a means both of increasing efficiency and of putting youth in contact with advantageous fields of employment. Special reports were presented on the employment of children in the canning industries of New York State and in the tobacco fields of Kentucky; and on the employment of the same children in the truck gardens of Maryland in summer and in the oyster fisheries of Florida in winter.

At a meeting in Washington, D. C., January 17-19, at the call of the National Civic Federation the representatives of many public bodies discussed uniform legislation in general and adopted a resolution calling for a high standard of uniform child labor laws. This resolution followed a summary of existing laws and an analysis of a proposed uniform law by Isaac Seligman of New York.

In New York City a general committee on child welfare was organized, including Miss Helen Gould, Dr. N. M. Butler, R. Fulton Cutting, Robert W. De Forest, V. Everett Macy, E. R. A. Seligman and many other leading citizens and philanthropists. It provided sub-committees on houses, health, Sunday schools, work and wages, laws and administration.

The Southern Conference on Women and Child Labor formed a permanent organization in Memphis, Tenn., on April 13. Governor Patterson, who had called the Conference, was elected president. Its object is to secure uniform legislation. The Southern Conference for the protection of working women and children adopted again resolutions which had been adopted at the Child Labor Conference at Nashville and New Orleans in preceding years. The States of Louisiana, Mississippi, Arkansas, Wisconsin, Georgia, Kentucky and Tennessee were represented; and eight cotton manufacturers were present. Vigorous exception was taken to the proposal of Dr. Stiles of the Rockefeller hookworm commission, that children of the poor whites be gathered into the mill towns in order to facilitate their treatment for hookworm. The Conference held this policy to be hostile to child labor welfare and urged a campaign for better sanitation on farms and in rural schools.

**LEGISLATION.** By a law effective August 1, Massachusetts became the twelfth State requiring a certificate of physical fitness for children seeking employment. The law requires that children of ages fourteen to sixteen present a certificate from a specially appointed physician showing sound health and physical strength before the school authorities and others may grant

age or school certificates. By another law the State Board of Health is empowered to determine whether any trade or process of manufacture is sufficiently injurious to the health of minors under eighteen years to warrant their exclusion therefrom. A fine of \$200 is imposed upon any manufacturer refusing to follow the mandate of the Board. In the same State the Supreme Court had sustained the judgment of lower courts that acting was prohibited for children under fourteen years. Theatrical people and others at once began a movement to have a law passed exempting child actors from the provisions of the child labor laws. The widest possible agitation was stirred up by those favoring and those opposing; and a bill exempting child actors was defeated. After five years' agitation a law was passed in New Jersey restricting the night employment of children in factories which operate a double shift. The chief opposition came from the glass manufacturers. The law provides that after July 4, 1910, no child under fifteen years may work at night, and after July 4, 1911, no child under sixteen. New Jersey, Illinois, New York and Ohio have thus forbidden the employment of children at night in glass factories; campaigns to a similar end are now on in Pennsylvania, Indiana, and West Virginia. New York enacted a law forbidding the employment of any person under twenty-one years of age as a night messenger, that is between 10 P. M. and 5 A. M. The employment of messengers was regulated also by Ohio, Maryland and Virginia. The Ohio law forbids such employment for persons under eighteen, between 9 P. M. and 6 A. M. Maryland forbids such employment during the day for persons under fourteen and at night for persons under sixteen, and forbids sending any minor to any house of ill repute. The Virginia law is similar to this last provision of the Maryland law. New York forbade the employment of children under sixteen in bowling alleys or as ushers, checkers, etc., in places of amusement, after 9 P. M. It also increased the list of dangerous trades; revised the adult delinquency law, which punishes parents for the delinquency of their children; and required that the names of immigrant children at Ellis Island be reported to the school authorities in the city of their destination. In Ohio the law regarding the granting of age and school certificates was revised so as to require more documentary proof; certificates are to be issued for a specific employment, and the employer is required to return this certificate to the school authorities within two days after the child leaves his service. Rhode Island repealed the law allowing mercantile establishments to employ children on Saturday evenings and on four evenings preceding Christmas, and passed a law requiring educational qualifications. Kentucky revised its law of school certification.

A law of Pennsylvania, effective January 1, made little change except in the manner of securing certificates. It provided that the issuance of certificates to children of ages 12 to 16 should be transferred from magistrates and notaries public to the public school authorities. The result was that hundreds, even thousands, of children previously employed in shops, mills, factories and mines were compelled to attend school.

**CHILD LABOR COMMITTEE.** See CHILD LABOR.

**CHILDREN'S COURTS.** See **PENOLOGY.**

**CHILE.** A South American republic extending along the Pacific coast from Peru to Cape Horn. The capital is Santiago.

**AREA, POPULATION, ETC.** The 23 provinces and one territory constituting the republic have an estimated area of 292,419 square miles (including the province of Tacna, 9248 square miles, still held by Chile, though claimed by Peru). Estimated population in 1908, 3,302,204. A more recent, though perhaps less accurate, estimate is 3,871,000. The larger cities, with population, November, 1907, are: Santiago, 332,724; Valparaíso, 162,447; Concepción, 55,300; Iquique, 40,171; Talca, 38,040; Chillán, 34,269; Antofagasta, 32,496. More recent estimates give Santiago about 400,000, but this figure is probably too large. In 1908 there were 129,733 births, 104,226 deaths, and 21,483 marriages. Immigrants in 1907, 8462; in 1908, 6024; 1909, 3098.

Primary instruction is free, but not compulsory. Public primary schools number about 2300, with an average attendance of about 172,000. There are about 80 lycées for secondary instruction, 15 normal schools, and various institutions for technical instruction. Higher education is provided at two universities. The state religion is Roman Catholicism, but religious toleration prevails.

**AGRICULTURE, ETC.** Wheat and other cereals constitute the most important crops, but fruits, vegetables, and wine are produced in large quantities. Reported area under cultivation in 1908, 7,828,128 acres; 1909, 9,211,324. Reported wheat yield for 1908, 18,922,462 bushels; 1909, 22,333,303 bushels; estimate for 1910, 23,642,000 bushels. Pastoral interests are developing notably, a recent estimate of livestock placing the number of cattle at 2,674,666; horses and mules, 746,150; sheep, 4,598,109; goats, 476,338; swine, 338,993. Reported annual slaughter: Cattle, 450,000; sheep, 600,000; swine, 140,000.

**MINING.** Chile owes its material prosperity largely to its mineral resources. According to the National Society of Mining, the total mineral production in 1908 was valued at 268,094,228 pesos (\$96,522,922) and in 1909 at 261,118,827 pesos (\$94,002,778). The decrease was due chiefly to a fall in the price of sodium nitrate, the most important product, which is mined in Antofagasta and Tarapacá. It is stated that the total capital invested in the nitrate industry is \$127,500,000 (\$53,500,000 British, \$52,500,000 Chilean, \$16,500,000 German). Reported production of leading minerals in 1908 and 1909 respectively: Nitrate, 19,709,743 metric quintals (of 220.4 pounds), valued at 215,033,298 pesos, and 21,015,125 quintals, 208,470,040 pesos; copper, 42,097 metric tons, 27,156,579 pesos, and 42,726 tons, 26,447,516 pesos; coal, 939,836 metric tons, 13,157,704 pesos, and 898,971 tons, 11,686,623 pesos; iodine, 330,090 kilograms, 3,928,171 pesos, and 474,200 kilos, 5,571,850 pesos; silver, 52,435 and 44,283 kilos; gold, 1189 and 1268 kilos; salt, 15,250 and 20,463 metric quintals; sulphur, 2705 and 4508 metric tons; sulphuric acid, 797,600 and 1,415,000 kilos.

**MANUFACTURES.** The leading manufacturing establishments are those concerned with the treatment of ores and other minerals. Statistics for 1908 show 4758 industrial establishments operating with more than four employes each; of these, 965 were engaged in hide, skin, and

shoe industries, 866 in food industries, 669 in metal industries, 555 in clothing manufacture, 439 in wood manufacturing, etc., 209 in paper and printing industries, and 204 in the preparation of alcoholic beverages. Total capital, 339,092,971 pesos; production, 469,123,133 pesos (the cost of raw materials being 257,000,000 pesos); employes, 67,355.

**COMMERCE.** The values of imports and exports in thousands of pesos have been as follows:

	1906	1907	1908	1909
Imports .....	237,698	293,682	267,264	262,083
Exports .....	289,621	280,081	319,149	306,430

Details of the special trade for 1909 are given in thousands of pesos as follows: ..

Imps.	1000 pesos	Exps.	1000 pesos
Textiles .....	64,141	Nitrate .....	210,870
Min. prods. ....	46,793	Copper .....	21,752
Coal, oils, etc. ..	45,928	Wheat .....	14,221
Veg. prods. ....	29,194	Iodine .....	5,572
Machinery .....	28,264	Calc. borate....	4,451
An. prods. ....	27,959	Barley .....	4,426
Paper, etc. ....	7,050	Oats .....	3,677
Chem. prods. ....	5,601	Wool .....	2,648
Liquors .....	5,433	Leather .....	2,536
Arms .....	2,302	Flour .....	1,090
		Seed .....	1,082
		Bran .....	963

The export of mineral products has been: in 1907, 242,030,200 pesos; in 1908, 271,459,100; in 1909, 241,527,700. Imports from and exports to the countries commercially most important, in thousands of pesos:

	Imports		Exports	
	1908	1909	1908	1909
Great Britain .....	83,920	87,340	149,356	128,570
Germany .....	76,763	62,046	67,595	63,567
United States .....	24,386	26,401	44,064	53,840
Australia .....	17,169	8,751	19,115	251
Belgium .....	12,757	7,536	8,658	7,941
France .....	11,945	15,511	7,141	14,293
Argentina .....	10,535	18,130	.....	2,173
Peru .....	10,214	12,994	3,432	2,824
Netherlands .....	.....	149	7,141	9,194

**SHIPPING.** There entered in 1909 14,587 vessels, of 24,923,308 tons (steam, 13,262, of 23,280,626 tons), and cleared, 14,402, of 24,696,585 tons (steam, 13,306, 23,264,420 tons).

**COMMUNICATIONS.** In the autumn of 1910, it was reported that the government had 1677 miles of railway completed and 1346 miles under construction, and private companies 1920 miles completed and 106 under construction. The Trans-Andine Railway was opened to traffic on the Chilean side on April 4, 1910. Telegraph lines (1909), 17,388 miles; offices, about 1400; post-offices, about 1100.

**FINANCE.** Revenue for 1908 is reported at 72,447,364 pesos gold and 132,959,840 pesos paper. The gold peso is worth 36.5 cents, and the paper peso averaged about 20 cents in 1908 and 21 cents in 1909. On October 5, 1909, the finance minister estimated the ordinary revenue for that year at 68,500,000 pesos gold and 127,300,000 pesos paper; ordinary expenditure, 58,171,878 gold and 172,584,404; total expenditure, 62,221,878 gold and 194,129,888 paper. Budget for 1910: Revenue, 69,000,000 gold and 138,575,000 paper; expenditure, 52,725,003 gold and 163,739,766 paper. Revenue is derived mainly from export duties on nitrate, customs, and the

railways. The largest expenditures are for the debt, army and navy, department of the interior, and public instruction. Foreign debt, December 31, 1909, £23,036,736; on December 31, 1910, £25,239,320. Internal debt at end of 1909, 15,659,344 pesos paper; outstanding paper currency, about 150,000,000 pesos. Total deposits in the banks, December 31, 1909, 394,614,515 pesos gold.

**ARMY.** The active army consists of 4 divisions, distributed territorially for mobilization, and each comprises the three arms of the service. The establishment is estimated at about 18,000 men, which in time of war could be increased to about 150,000 men. By including a part of the National Guard the entire war strength is estimated at 350,000 men, out many of these have received little or no military training. In 1910 there were 10 regiments of infantry; 8 of cavalry; 20 batteries of field artillery, one mountain battery, 2 battalions of mounted infantry and a corps of engineers. While all able-bodied citizens are liable to service in the army, the annual quota for the active army is only about 17,000.

**NAVY.** In 1910 the navy included 3 armored battleships, aggregating 19,000 tons; 1 armored cruiser (7000 tons); 4 protected cruisers (14,500 tons); 4 torpedo gunboats (1470 tons); 7 torpedo-boat destroyers (2270 tons); 5 first-class torpedo boats (728 tons); and several auxiliary vessels. It was reported that on August 30, 1910, the government asked for bids on the construction of two 25,000-ton battleships having a speed of 23 knots.

**GOVERNMENT.** The executive authority is vested in a president, elected for five years and assisted by a responsible council of state and a responsible ministry. The legislative power devolves upon a congress of two houses, the Senate (32 members) and the Chamber of Deputies (94). The President for the term beginning September 18, 1906, was Pedro Montt. He died August 16, 1910, and was succeeded by the Vice-President, Elias Fernández Albano. Señor Albano died September 6 and, under the Constitution, the executive duties were assumed by Emiliano Figueroa, the Minister of Justice. Subsequently a new incumbent was chosen on November 15 in the person of Ramón Barros Luco, who was inaugurated December 23, 1910.

**HISTORY.** The long-standing difficulty with Peru over the status of Tacna and Arica, may be summarized as follows: According to the treaty of October 20, 1883, after the war between the two countries, Chile was to keep Tacna and Arica and to administer these provinces with her own officers and under her own laws until a plebiscite should decide to which country the natives of the provinces wished to attach themselves. This plebiscite was to be subsequently determined by a special protocol between the two governments. Though there seemed a prospect of adjustment in 1908, the affair was still left in an indeterminate state and has continued to cause much friction. In 1910, difficulty arose over the ecclesiastical question. Chilean priests appointed by the government to minister to Chilean residents were unable to perform their duties because the Peruvian Bishop of Arequipa, claiming jurisdiction, refused his spiritual sanction. The Bishop also objected to the requirement that Peruvian priests should apply to the Chilean government for the right to minister, which requirement was

made by Chile. When the Chilean government commanded them to do so, they refused and the government thereupon forbade them to minister and closed the churches. The priests, however, officiated in secret and the Chilean government in March asked them to leave the country. Peru retorted by withdrawing her diplomatic representatives, and in April made a formal demand for arbitration.

The President, Señor Pedro Montt (q. v.), who had held office since 1906, died at Bremen on August 16 and Señor Elias Fernández Albano, Vice-President, who was acting as chief executive in his absence, continued in that capacity, but he in turn died on September 6, when the campaign for the election of President was going on. Señor Ramón Barros Luco, a Liberal, was chosen. The Minister of Justice, Señor Figueroa, was acting President in the interval.

In June it was announced that the Chamber of Deputies had authorized the President to place a loan of \$20,000,000 for new warships and naval defense. Early in July Congress voted for defense purposes the sum of 22,400,000. On September 13, Chile signed an arbitration treaty with Argentina. The centennial anniversary of Chilean independence was celebrated on September 18. For an account of the arbitration of the Alsop case, see **ARBITRATION, INTERNATIONAL.**

**CHINESE EMPIRE.** A monarchy of eastern Asia. The capital is Peking.

**AREA AND POPULATION.** The area in square miles, and the population, are stated as follows (the first column for population being the Chinese estimate of 1902; the second, an estimate accepted by many as more nearly accurate):

Empire	Sq. mi.	Pop.	Pop.
China Proper	1,532,420	407,253,030	320,500,000
Manchuria	863,610	16,000,000	5,530,000*
Mongolia	1,367,600	2,600,000	1,850,000
Tibet	463,200	6,500,000	2,250,000
Chinese Turkestan, etc.	550,340	1,200,000	.....
Total	4,274,170	433,553,030	.....

\* Probably too low.

During 1910 there was some discussion of the size of the Chinese population and of the enormous discrepancies existing between various estimates. It is now believed generally that the traditional figure 400,000,000 is far too high and that even 300,000,000 may be regarded as the maximum, although in 1906 the Chinese Imperial Customs put the total at 438,214,000. In 1904, the American minister at Peking, after careful inquiry, estimated the population of China proper at 270,000,000. In 1909, a house census, ordered by the government, showed about 27,000,000 habitations, not including those in Mongolia, Tibet, the Amur, Shansi, Kwangsu, and Szechuan. It appeared that there was a not unnatural tendency on the part of the people to conceal the truth, on account of their apprehension that the taking of a census precludes an increase of taxation. Allowing that concealments to the extent of one-fifth took place, it appears that the number of houses is not more than 33,000,000, which, at the rate of 5.5 persons per house, gives a population of less than 182,000,000. To this must be added the population of the six districts excluded above, and among them Szechuan alone has been

estimated to have 40,000,000 inhabitants. Still it would seem that the total population of the empire does not greatly exceed 270,000,000. The number of houses in Peking and its suburbs is returned at 251,014, which represents a population of about 1,400,000. In Manchuria, the province of Feng-tien is credited with 803,390 houses (upwards of 4,400,000 inhabitants), and Kirin with 738,480 houses (about 4,050,000). Estimates, by the Imperial Customs, for the larger treaty ports are (1908): Canton, 900,000; Hankow, 820,000; Tientsin, 800,000; Shanghai, 651,000; Foochow, 624,000; Chungking, 610,000; Soochow, 500,000. In 1909 the number of foreigners living in the treaty ports was upwards of 88,000, of whom over 55,000 were Japanese.

The three recognized religions are Confucianism (the state religion), Buddhism, and Taoism. Native adherents of religions properly foreign to China include about 30,000,000 Mohammedans (probably this estimate is too high), 1,000,000 Roman Catholics, and 150,000 Protestants.

**EDUCATION.** There are three classes of schools—the old-style schools, the mission schools, and the institutions which are being established by the government pursuant to the Imperial decree of September 3, 1905. The old-style schools are private institutions whose curriculum is practically confined to the Chinese classics, examination in which, for state employment, was abolished by the above-mentioned decree. This decree, which has given an enormous impetus to the movement for "Western learning," provides for an elaborate system of education, modeled on that of Japan. Naturally considerable time must elapse before the system is satisfactorily developed, but already results are very encouraging. The missions conduct a large number of schools from primary to collegiate rank; in 1907, the reported number of mission primary pupils was 42,546 and of pupils in higher mission schools 15,137. Besides the Imperial University at Peking, which is a government institution with European, Japanese, and Chinese professors, there are various schools or colleges for higher and technical instruction.

**INDUSTRIES.** China proper is a distinctively agricultural country. In the north, the principal crops are wheat, barley, corn, millet, and other cereals, and beans and peas; in the south, rice, sugar, indigo, and cotton. Tea and silk cocoons are important products, the former in the west and south, the latter in every province. About 27 per cent. of the world's supply of raw silk comes from China. Large amounts of opium have been produced, but, pursuant to government decree, the output is being restricted and, it is expected, will cease entirely by 1916. The opium question will be discussed at an international conference at The Hague in 1911.

The country is rich in minerals, but for the most part they are little exploited. Those worked to a greater or less degree include coal, tin, iron, antimony, lead, zinc, copper, and salt. Of the metals, tin (in Yunnan) and iron are the most important.

Manufacturing, in the Western sense, is comparatively small, but the textile and iron industries in particular are showing considerable development. The number of spindles in operation in 1909 is placed at 750,000.

**COMMERCE.** Imports for consumption and ex-

ports of domestic produce have been valued as follows in Haikwan taels (the Haikwan tael was worth about 79 cents in 1907, 65.5 cents, July 1, 1908, and 63.4 cents, July 1, 1909):

	1907	1908	1909
Imports .....	416,401,369	394,505,478	418,158,067
Exports .....	264,380,697	276,660,408	338,922,814

Principal articles of import in thousands of Haikwan taels:

Imports	1907	1908	1909
Cotton goods* .....	118,916	110,898	137,791
Opium .....	28,654	34,226	36,027
Sugar .....	26,359	19,801	27,173
Kerosene .....	20,203	27,326	23,028
Rice .....	34,417	26,579	15,655
Railway materials...	12,805	12,894	13,108
Flour .....	13,985	6,931	8,742
Iron .....	5,889	6,977	8,489
Coal, etc. ....	7,669	8,436	8,443
Dyes, " .....	9,169	7,072	7,932
Fish, " .....	8,353	7,712	7,712
Tobacco .....	5,823	6,930	7,421
Machinery .....	6,150	6,846	5,825
Matches .....	4,896	5,158	5,657
Wood .....	7,458	6,429	5,234
Woolen goods.....	6,899	4,340	3,310

\* Including cotton yarn, valued in 1909 at 63,-920,000Hk. taels.

Leading exports in thousands of Hk. taels:

Exports	1907	1908	1909
Silk* .....	83,084	85,709	93,487
Beans, bean-cake.....	12,390	23,562	52,220
Tea .....	31,736	32,891	33,567
Hides, skins.....	11,117	12,074	16,479
Cotton, raw.....	1,118	10,516	14,613
Straw goods.....	10,624	11,098	12,428
Sesame .....	3,671	9,138	11,674
Veg. and Provisions...	2,515	.....	8,426
Wool .....	4,531	4,490	7,827
Oil .....	4,226	5,481	6,850
Livestock .....	3,766	4,225	4,415
Fireworks .....	4,211	.....	4,160
Tin .....	3,376	4,483	4,125
Paper .....	3,377	3,439	3,407
Tobacco .....	2,816	.....	3,086
Medicines .....	2,411	.....	2,795

\* Including raw silk, valued in 1909 at 71,154,000Hk. taels.

Imports (including re-exports) by countries, in thousands of Hk. taels:

Countries	1907	1908	1909
Hongkong .....	155,642	150,252	150,471
Great Britain .....	77,563	72,561	68,230
Japan .....	57,461	52,501	59,975
British India .....	32,913	30,499	40,434
United States .....	36,908	41,246	32,607
Russia .....	913	8,652	15,415
Germany .....	16,177	14,039	15,189
Belgium .....	10,581	8,450	10,858
Du. E. India.....	.....	.....	8,838
Sta. and Singapore.	5,348	5,418	6,779
Indo-China .....	.....	.....	6,045
Macao .....	5,844	5,822	5,322
France .....	3,159	2,403	2,182
Korea .....	.....	1,320	2,096
Netherlands .....	.....	.....	1,774
British America ...	1,130	1,203	1,391
Italy .....	609	509	466
Other .....	24,828	14,680	3,978
Total .....	429,072	409,555	430,049
Re-exports .....	12,670	15,050	11,891
Net total .....	416,401	394,505	418,158

Domestic exports by countries, in thousands of Hk. taels:

Countries	1907	1908	1909
Hongkong .....	97,226	92,108	96,919
Japan .....	39,347	37,120	51,558
Russia .....	17,201	29,559	40,433
France .....	30,659	32,129	38,598
United States .....	26,598	23,824	32,446
Great Britain .....	12,108	12,555	19,579
Italy .....	8,038	9,849	8,851
Germany .....	6,109	7,094	7,529
Belgium .....	3,979	4,388	5,070
British India .....	3,180	4,090	4,813
Sis. and Singapore .....	4,060	3,786	4,800
Macao .....	4,092	4,418	4,674
Netherlands .....	.....	.....	4,672
Korea .....	.....	2,595	2,917
Indo-China .....	.....	.....	1,920
British America .....	701	1,148	1,254
Du. E. India .....	.....	.....	1,204
Other .....	24,828	11,996	11,763
Total .....	264,381	276,660	338,993

The trade with Hongkong and Macao is chiefly transit. The more salient features of the foregoing tables are the expansion of exports in 1909, the very rapid growth of the soy-bean and bean-cake industry, the remarkable development of both imports from and exports to Russia, and the continued unsatisfactory condition of the trade with the United States.

SHIPPING. In 1908 and 1909, the entrances and clearances combined, including junks, in both the foreign and the coasting trade were as follows:

Flag	Vessels	Tons	Vessels	Tons
British .....	28,445	34,406	27,699	34,027
Japanese .....	30,708	18,055	30,808	18,949
Chinese .....	136,663	16,946	135,053	17,861
German .....	5,496	6,586	5,854	7,244
French .....	3,901	5,072	5,141	4,920
Other .....	2,392	2,927	3,961	3,771
Total .....	207,605	83,991	208,516	86,772

In 1908: steam, 86,600 vessels, of 77,955,525 tons, and sail, 121,005, of 6,035,764 tons; 1909: steam, 87,802 vessels, of 80,613,890 tons, and sail, 120,714, of 6,157,919 tons.

COMMUNICATIONS. Roads in China are numerous, but generally in a poor state of repair. More important commercially are the rivers and canals, by means of which junks carry on an enormous amount of traffic. Including the Manchurian lines, there were open to traffic in 1909 about 4700 miles of railway; in 1910, about 4840 miles. New lines and extensions embracing a large mileage are under construction, and many others projected. Telegraphs (1909): miles of line, 26,413; of wire, 43,011; offices, 490. Posts (1909): offices, 4258; pieces handled, 344,197,000. The postal service has been much developed during the last three years. Letters can be sent throughout the 18 provinces at a uniform rate of two cents per half ounce. Postal lines have been extended as far as Tibet. A money order system is in operation throughout China proper, and an express delivery service in the large cities.

FINANCE. No comprehensive statements of revenue and expenditure are officially published. Except the foreign maritime customs, most of the revenue is collected by provincial agents, and probably a considerable part of it remains with the collectors. An unofficial estimate in 1901 placed the revenue and expenditure at 88,200,000 and 101,120,000 Hk. taels respectively. A 1908 estimate placed the revenue at 105,000,000 Hk. taels. Receipts from customs: 1907, 33,861,346 Hk. taels; 1908, 32,901,895; 1909,

35,939,917. The last figure comprehended import duties, 14,084,736 Hk. taels; export duties, 12,335,675; coasting-trade duties, 2,016,506; tonnage, 1,276,218; transit, 1,920,817; opium likin, 3,905,965. Toward the end of 1910 a report was current that the government was hard pressed in devising means to meet an apparent deficit of some 75,000,000 Hk. taels. It appeared that further external loans were regarded as dangerous in inviting foreign hold on the country, and increased taxation seemed impracticable. According to this report the foreign debts had reached a total of £155,040,372 (\$754,303,970). The latest available complete statement of the debt (March 2, 1908) is as follows: £38,839,600 (\$189,012,913); 499,978,000 francs (\$96,495,754); 452,653,000 Hk. taels (\$294,224,450); total, \$579,733,017.

The Haikwan tael, which is the unit of value used by the Maritime Customs, fluctuates in value with the price of silver, being worth 65.5 cents on July 1, 1908, 63.4 cents on July 1, 1909, 62.6 cents on December 31, 1909, and 67.3 on December 31 1910. The government has taken measures for the establishment of a uniform national coinage. See below, paragraph *Currency Reform*.

ARMY. Much interest attaches to the reorganization of the Chinese Army, which has been in progress since the promulgation of the law of January, 1905. China possesses a National army consisting of the active army and first and second reserve. The plan of organization involves 37 divisions including all arms of the service, and by 1913 it was expected that these divisions would number 28,000 officers and 430,000 men of whom 380,000 would be available combatants. Service is voluntary and selected recruits are taken to serve for three years with the colors, after which there is optional and paid service in the first reserve for three years, followed by 4 years spent in the second reserve. In 1910 it was estimated that probably 20,000 soldiers had passed into this reserve. The training of the forces was being directed by Japanese officers, and military schools are maintained in the various provinces. During the year 1910, on the return of Prince Tao from America and Europe and the appointment of a new Minister of War, Yin-Chang, a number of military reforms were inaugurated, which met with approval on the part of the native press. The two most important reforms consisted of the creation of a War Council of Defense (Kium-che-wei-y-kin) and the placing of the first, second, third, fourth, and fifth divisions under the direct orders of the Ministers of War, making them independent of the authority of the viceroys of the provinces. This last measure was expected to result in great economy, and it was an important feature in the unification of the new National army and afforded the central government a direct and quick means of control. Minor reforms involving the centralization of power in the Peking government were in progress, especially in connection with the uniform system of instruction and disbanding, reports to superior officers and the transfer to Peking of the school of gendarmerie from Taku, placing it under the orders of the War Minister. There was under discussion during the year a number of projected reforms, of which the following were the more important: the creation of new divisions in the army, 5 for Mongolia, 7 for Tibet, and

Sungaria, 2 for Manchuria, so that with the 36 divisions in progress of formation, there would be eventually 50 divisions. An official was appointed to supervise the establishment of these organizations on the frontiers. Another important reform contemplated was an army separation of the Siun-tang-toei, or bands of police and the transfer of their functions to various divisions of the Lou-kiun or active regular army. Much sympathy with these reforms was manifested by the press and the spirit of young China, though there was considerable opposition. The Chinese Army consisted in 1910 of the new National active army (Lou-Kiun), the auxiliary or police forces (Siun-fang-toei), the force of modern police (Siun-king-kiun), contingents of the Manchurian banners (Pa-k'i), remains of the old army of the Green Flags (Lou-Yng), rural militia (Toan-lien), Mongolian and Tibetan contingents; river troops (Choei-che-ying and Choei-che-Kiun K'ing). A complete system of military education had been introduced and student officers were being sent to Japan for study and service with Japanese troops.

The effective and combatant strength actually serving with the colors in 1910 was as follows: Infantry, with 74 machine guns of vari-

ous types .....	117,500
Cavalry .....	8,240
Artillery, with 780 guns.....	13,700
Engineers .....	6,875
Train .....	6,000

Total .....152,556

Of these 152,556 were considered sufficiently well trained and organized to conduct themselves creditably in the field.

**NAVY.** The navy in 1910 was reported to include 4 cruisers (one of 4300 tons and 3 of about 3000 tons each), various miscellaneous vessels (including 8 old cruisers), several old torpedo boats, dispatch boats, etc., and about 20 modern gunboats. Two small cruisers (2400 tons each) were under construction in England. About the end of 1910 the government awarded a contract for the construction in the United States of a second-class cruiser of between 4000 and 5000 tons to cost upwards of \$1,000,000.

**GOVERNMENT.** The authority of the sovereign is limited or modified by certain advisory bodies, as the Grand Council, the Government Council, and (since 1907) the Senate, and by the powerful provincial viceroys. An edict of August 24, 1908, promised a constitution and Parliament in 1917. Deliberative Provincial Assemblies, which were encouraged by the government for their educative value, met for the first time in October, 1909. In 1910 the demand for representative government increased, and late in the year it was announced that the constitution, the law of election, and the law relating to the parliamentary houses would be promulgated in July, 1911, that the general election would take place in May, 1912, and that the Parliament would be opened early in 1913. The historic system of examination in the Chinese classics for political preferment has been abolished since 1905. The Emperor Kwang-Hau died August 14, 1908. He was succeeded on November 14 by his brother's son, Pu-yi, who was born February 11, 1906. The Emperor's father, Prince Chun, is Regent.

#### HISTORY

**BEGINNINGS OF REPRESENTATIVE GOVERNMENT.** It will be remembered that definite

steps were taken in 1907 and 1908 toward the establishment of parliamentary government. In the former year commissioners went to Germany, Great Britain, and Japan to study the constitutional systems of those countries and a government council was appointed to make a preliminary report on the establishment of a regular Parliament. A plan for a National Assembly was outlined in an Imperial decree on September 20, 1907. On July 22, 1908, an Imperial decree was issued providing for Provincial Assemblies deliberative in character, and serving as a basis for a future Parliament. On August 27, 1908, the Imperial government issued a decree definitely outlining a constitution and promising the establishment of a Parliamentary system within nine years. In 1909 elections were held for the new Provincial Assemblies which met in October of that year. Meanwhile the regulations to govern the new National Assembly had received Imperial approval on August 23. On May 9, 1910 an Imperial decree announced the inaugural meeting of the new body for October 3, on which date it was opened by the Prince Regent. It had advisory powers only. It was to form the nucleus of the Houses of Parliament, for though consisting of a single Chamber, it comprised elements which might well divide into two houses, namely, representatives of the privileged classes and representatives of the Provincial Assemblies. Subjects within the competence of the new body are as follows: Financial questions, including the national receipts and revenue, preparation of the budget, taxation, public debts, legal questions, that is to say, consideration of new codes, which, however, must receive Imperial approval before discussion by the Assembly; and also such questions as may be referred to the body by the Emperor. Any resolution agreed upon by the Assembly must receive Imperial sanction before having legal effect and must also have been framed in consultation with the Grand Council or with one of the Ministers. If either of the latter should disagree with the Assembly, both opinions must be referred to the Emperor for decision. As to the relations of the National and Provincial Assemblies, the former is to decide any matters upon which the Provincial Assemblies and the Governors cannot reach an agreement or upon complaints against any viceroy or governor, this decision to be subject to Imperial sanction. Petitions may be received from Chinese subjects through members from the same portion of the country. The expenses of the members are to be defrayed by the government. Should members disobey the command to attend sessions or should the National Assembly pass resolutions injurious to the public order or bring the government into contempt, the body may be dissolved. On October 23 it was announced that the new National Assembly had joined unanimously in supporting the demand for the calling of an official Parliament. Seven years must still elapse, according to the government programme, before the constitutional system was completed with the establishment of a full Parliament, but the popular movement for hastening this result had been gaining force rapidly during recent months. After debating the question, the Assembly finally decided upon a memorial to the Crown, urging the immediate assembling of a Parliament. On receiving this memorial an Imperial edict was

issued ordering the Government Council to consider it. An address by Prince Yu-lang before the Assembly on October 31, declared that the whole nation agreed in desiring an early meeting of Parliament. This was interpreted as proof that the government would accede to the request and was received with great enthusiasm. After agreeing at first to shorten the interval to three years, the Imperial government acceded to the Assembly's renewed request for the immediate summoning of Parliament and issued an edict directing that preparations be made for calling the new body. There was a violent discussion in the Assembly on November 22, on account of the alleged encroachment on the National body's rights by the Grand Council, and the House finally decided unanimously to appoint a committee to draft a protest against the action of the Council and lay it before the throne. The Assembly later adopted a memorial, declaring that the powers of the Grand Council were now undefined and unless it was made answerable to the people the formation of a responsible cabinet was necessary. The proposal was rejected. Thereupon the Assembly prepared a fresh memorial condemning the acts of members of the Council and demanding that that body should be made responsible to the people. On December 25 an Imperial edict ordered the Constitutional Bureau to prepare at once a constitutional programme including a plan for a cabinet. This was taken as evidence that the government would yield to the demands of the reformers.

**TROUBLE WITH TIBET.** Early in January serious complaints were made of the brutalities of Chinese troops in Tibet, who were accused of destroying certain monasteries and desecrating others, and of killing a number of the Lamas. After the Younghusband mission, provisional governors or Ambans were appointed to administer the Tibetan government by the Chinese authorities. In 1909 a body of Chinese troops were dispatched to the Szechuan frontier where they put down with some severity the resistance of the Lamas. Upon the Dalai Lama's return to Lhasa, having, it is said, Imperial authority for assuming supreme control, a conflict of jurisdiction arose between him and the two Ambans at Lhasa. The rule of the Ambans was opposed by the Tibetans on the ground that it was arbitrary, and disregarded the wishes of the natives. Altogether, there were six Chinese mandarins holding the office of Amban in various parts of Tibet. The petitions of the natives to the Chinese government and to Lord Minto for redress of the alleged grievances were unavailing and the threat was made that if the Ambans and the troops were not withdrawn, a revolt would follow. The Chinese forces in Tibet were estimated at 25,000. In February the Dalai Lama fled from Lhasa to India, apparently en route to Peking, and on February 22 Chinese troops occupied Lhasa. After his arrival in India it was announced in March that an edict from Peking had been issued, deposing him and stripping him of all his dignities. It was alleged by the Dalai Lama and his supporters that the Amban in Lhasa to whom he had complained of the atrocities of the Chinese on the Szechuan frontier, the killing of the Lamas and the sacking of monasteries, had disregarded his authority, and called upon the Chinese troops to enter Lhasa. Great Britain and Japan jointly urged on the Chinese

government the need of maintaining peace on the Anglo-Tibetan border.

**RAILWAYS.** For an account of the proposals of the United States government for the neutralization of the Manchurian railways, see UNITED STATES, paragraphs on *Foreign Relations*, and JAPAN, paragraphs on *History*. Japan had raised objections to the Chinese project of a railway from Chinchow-Fu to Sigun, and the French and British governments advised China not to go on with it, without the approval of Japan and Russia. On February 18, 1910, Japan withdrew her objections on condition that Japan should participate in the financing and building of the line, and that China should subsequently build a line connecting it with the Southern Manchurian railway. The demand supported by the United States government, that American capital should participate in the Hankow-Szechuan railway loan had been conceded in 1909, and on May 24, 1910, the four groups of financiers interested signed an agreement whereby the loan was shared equally by American, French, German, and English capital. A postal agreement between China and Japan in February restored to China her monopoly of mail carrying on her own lines and gave her equal rights with Japan over Japanese railways.

**CURRENCY REFORM.** The Imperial government issued a decree on May 24, commanding that the unit of national currency should be the yuan or dollar and that the temporary standard should be silver. It prescribed the weight of the dollar and defined the nature of the subsidiary coinage. It provided for the gradual calling in of the old coinage and required that after one year payments of taxes and of all government charges should be made in the new currency. The Peking bankers agreed to cooperate with the government in carrying out its plan. A group of American financiers acting under the encouragement of the United States government offered to loan \$50,000,000 at 5 per cent. to the Chinese government in furtherance of its currency scheme, and in connection with the loan it was proposed that an American financial adviser should be appointed at Peking. A preliminary agreement covering the loan was made toward the end of the year, and the United States government received assurances that an American adviser would be engaged.

**OPIUM TRAFFIC.** According to the regulations decreed by the Chinese government in 1906, the cultivation of the poppy and the taking of opium should cease gradually within a period of ten years and cultivation of the poppy should be reduced at the rate of one-tenth a year. The rules also provided for the registry of opium users, of opium shops, of sales, etc., and prohibited the use of opium by teachers, soldiers, and sailors. In 1907 an agreement was reached with the British government whereby 51,000 chests were taken as the standard of annual exportation from India, and from this quantity there was to be an annual diminution of 5100 chests with a view to bringing the traffic to an end after ten years. In 1909 at the intervention of the United States government an International Conference on the Opium Trade was held at Shanghai. It passed a number of important resolutions, urging the government to inquire into the best means of curing the opium habit and into the general medical aspects of the question, declaring that the Chinese

government was sincere in its suppression and had made progress, and laying down the principle that each country ought to control the trade in morphine, etc., and prevent its shipment; and that it should suppress opium smuggling and close the opium dens of its own settlements. The United States government urged the Powers to hold a second conference in 1911 and eleven governments agreed (see OPIUM) in 1910. The British government in announcing its acceptance in September excluded from discussion the existing agreement between the British and Chinese governments as to the opium trade. The suppression of the opium traffic naturally had a very important effect on the trade of India in the drug, since about two-thirds of the Indian exports of opium went to China. Nevertheless, the entire revenue of the Indian government from opium increased from £3,273,000 in 1907-8 to £4,432,000 pounds in 1909-10. This was explained by Mr. Montague of the Indian government in his budget speech in July, 1910, as arising from the higher prices obtained for opium and the falling off in expenditures in Bengal owing to reduced operations, and also to the receipt of certain duties in advance. He said that while during the first five years of the period of gradual suppression the Indian revenues were not likely to suffer, there would be more serious effects upon them during the next five years. At the meeting of the World Missionary Conference at Edinburgh in 1910 a resolution was passed expressing the wish that the British Imperial and Indian governments would meet the financial difficulties caused by the cessation of the opium revenue without increasing the taxation of the people or injuring the Feudatory States concerned. In January, 1910, the British Foreign Office published a report on the results of the Chinese government's efforts to suppress the opium evil. It said that the anti-opium campaign, begun in 1907, had caused a material reduction in the consumption and cultivation of opium and had greatly aroused public opinion on the subject. It said further that gradual suppression within a definite period of time was the policy generally favored, but that the officials generally took too sanguine a view as to the time within which it would be accomplished. There were continued difficulties in regard to the regulation of the opium traffic during 1910 (see HONG KONG), and the government's policy was considered too strict by many British merchants. See also OPIUM.

**OTHER EVENTS.** Rioting occurred in May at Changsha and its neighborhood, when a Lutheran chapel was destroyed and many houses burned down. The British and Japanese governments demanded reparation for the damage done to property of their subjects, but restricted their claim to money payments. There were fears of an anti-foreign outbreak at the Nanking Exhibition, but it was opened on June 5 and no disturbance occurred. The government had a large body of troops in readiness to put down any disorder. In August it was announced that Wu-Ting-Fang, former Minister to the United States, was to be appointed to the newly created office of adviser to the Foreign Office. In the same month important changes in the administration became known, marking the virtual restoration of the party of reform to the Ministry. An Imperial edict appointed a former follower of Yuan-Shih-Kai President

of the Ministry of Communications.' During the latter part of the year there were frequent rumors of palace intrigues arising from the present empress dowager's desire to control affairs and her hostility to the Prince Regent, and fears were expressed in the European press that she aimed at setting aside the present boy emperor Pu-yi. The Prince Regent's overtures to the party of reform were attributed to his waning power at court and to his need of popular support as an offset. Further progress was made in 1910 by the Chinese Emergency Appeal Committee in the plan for a Christian but undenominational university in Central China, and a number of grants of money were made by the Committee in connection with that object. For an account of the Russo-Japanese agreement concerning Manchuria, see JAPAN, paragraphs on *History*.

For geographical explorations in China in 1910, see **EXPLORATIONS**.

**CHINESE IMMIGRATION.** See **IMMIGRATION AND EMIGRATION**.

**CHINESE SERVICE.** See **EXPLORATION**, and **ASIA**.

**CHINESE SWAMP LANDS.** See **DRAINAGE**.

**CHINOSOL.** A new antiseptic drug having the chemical formula  $(C_6H_7ON)_2H_2SO_4$ . Its chemical name is oxychinolin sulphate. It is a yellow crystalline powder of saffron-like odor and burning taste. It dissolves readily in water, with difficulty in alcohol, and is insoluble in ether. The drug is a powerful antiseptic equal to bichloride of mercury and is believed to be non-toxic. As a germicide it is feeble, being weaker than carbolic acid in solutions of corresponding strength.

**CHIPMAN, HENRY L.** An American soldier, died October 25, 1910. He was born in Canandaigua, N. Y., in 1823, and at the beginning of the Civil War entered the volunteer service with a Michigan regiment. He was soon appointed a captain in the 11th infantry in the regular service. He joined the Army of the Potomac and took part in the Peninsular campaign. In 1864 he was appointed colonel of the colored volunteer regiment and commanded a brigade in a battle at Honey Hill, S. C. He also took part in the Siege of Yorktown, Gaines's Mill, Malvern Hill, Antietam, Fredericksburg, and Gettysburg. He received the brevet of major for gallantry at Chancellorsville and that of brigadier-general for service during the war. At the close of the Civil War he was appointed lieutenant-colonel in the regular army. He retired for age in 1887.

**CHIROL, V.** See **LITERATURE, ENGLISH AND AMERICAN, Travel and Description**.

**CHLORINE.** See **ATOMIC WEIGHTS**.

**CHLOROFORM.** See **ANÆSTHESIA**.

**CHOLERA.** This disease raged in Russia with even greater severity during 1910 than in the previous year, and spread to several other countries of Europe, Germany, Austria and particularly Italy being visited. In the latter country, cholera was epidemic in several localities and many people died. Naples was for a time dropped as a port of call by steamships. In Russia, up to November, there were 170,353 cases, with 77,406 deaths. This country continues to be a menace to Europe, on account of the apathy of the government and the indifference and opposition of the people toward sanitary reforms. It is stated by

Dworetzky, of Moscow, that of 1082 cities in the Russian Empire, only 192 have a public water supply, and 38 a sewerage system. Of the 762 cities in European Russia, 149 have a public water supply and 27 are properly sewered. The Prussian government, acting on the late Robert Koch's advice, established laboratories at the junction of the Vistula and Memel rivers, to examine the crews of boats and rafts passing this point. Over 5200 persons were so examined in five weeks. As is the case with many other infectious diseases, it was found that healthy germ carriers are by no means rare, and the danger of insidiously spreading the disease is thus increased. See VITAL STATISTICS.

**CHO-SEN.** Official name for KOREA (q. v.).  
**CHRISTIAN ENDEAVOR, UNITED SOCIETY OF.** A religious society of young people, founded in Portland, Me., in 1889 by Reverend Francis E. Clark. In 1910 there were 73,531 societies with a membership of 3,676,050 chiefly in the United States and Canada, and in Australia, Great Britain, China, India, Japan, and all missionary lands. During the year a campaign for the increase of membership was carried on and this was attended with remarkable success. Over 4000 new societies were formed and about 350,000 new members were added in America alone. There was no national convention held in 1910, but a series of very successful State conventions were held. The important development of the year was the establishment and growth of summer schools and Christian Endeavor institutions. A movement has been on foot for several years for the buildings of a new international headquarters building and a site has been purchased in Boston. This building is to cost in the neighborhood of \$200,000. The officers of the Society in 1910 were: President, Rev. Francis E. Clark; general secretary, William Shaw; treasurer, Hiram N. Lathrop; editorial secretary, Amos R. Wells; interstate field secretary, Carl Lehmann.

**CHRISTIANS, or CHRISTIAN CONNECTION.** A religious denomination which had its origin in the period following the War of the Revolution when the Rev. James O. Kelly, a Methodist minister in Virginia opposed the absolute power of the bishops of the Methodist Episcopal Church in the matter of appointments to charges. He failed to bring about the changes desired and in 1792 withdrew from the church. In 1794 the body of worshippers who were joined with him took the name of Christians, taking the Bible as their guide and accepting no test of church fellowship other than christian character. The general polity of the denomination is congregational and each local church is independent in its organization. There are, however, conferences in which ministers are admitted to the membership and in which the churches are represented by lay delegates. The general agent for the churches for the conduct of their general work is the American Christian Convention, with its two incorporated departments, the Mission Board of the Christian Church and the Christian Publishing Association. According to the religious census made in 1906 and published in 1910 the total number of communicants in the denomination in 1906 was 110,117, with 1253 church edifices. The value of church property was \$2,740,322. The denomination had 1149 Sunday schools, with 10,510 officers and teachers. According to sta-

tistics gathered by Dr. H. K. Carroll in 1910, there were in the denomination 85,717 communicants, 1379 churches and 1011 ministers. The denomination carries on foreign missionary work in Japan and in Porto Rico. The churches in Japan are organized into a conference independent of any control by the denomination in the United States. Foreign missions are also carried on in the northwestern and western parts of the United States. Under the control of the denomination or affiliated with it are nine institutes and colleges. A home for aged Christian ministers is maintained at Castile, and an orphanage at Elon, North Carolina. The organ of the denomination is the *Herald of the Gospel of Liberty*, the oldest religious newspaper in the United States. It is published in Dayton, Ohio. The publishing house in that city also issues the Sunday school literature of the denomination.

**CHRISTIAN SCIENTISTS;** official designation, **THE CHURCH OF CHRIST, SCIENTIST.** A religious organization founded by Mrs. Mary Baker Eddy. It was chartered in 1879 by Mrs. Eddy and in 1881 she became the pastor of the First Church of Christ in Boston.

The teachings of the body are founded on the Bible and on the precepts contained in *Science and Health with Key to the Scriptures* by Mrs. Eddy. The central organization of the Church of Christ, Scientist, is the Mother Church in Boston. There are, however, branches in the various parts of the United States, and other parts of the world, each having its own form of government, its own rules and by-laws and its own financial affairs. There are also Christian Science Societies not organized as churches. There are no pastors in the sense in which that term is used in other religious bodies, but the lesson-sermon takes the place of the clerical address usually delivered by a pastor. The principal work of the denomination as a whole and of its individual members is summed up by them in the word "healing," by which is meant mental, moral, and physical regeneration of mankind.

According to the census of religious denominations made in 1906 and published in 1910 the total number of members of the Church of Christ, Scientist, was 85,717, with 604 organizations and 253 church edifices. No official census of the membership has been taken since 1908, but the following figures have been published as the latest available: An approximate membership of 320,000, with 997 churches and societies in the United States and foreign countries; practising healers in the United States and Canada, 3765; in foreign countries, 296. Healers are registered in practically every country in the northern hemisphere. Every State in the Union has at least one Christian Science church. The approximate value of the church property was \$28,000,000.

Mrs. Eddy, the founder and discoverer of Christian Science, died December 3, 1910. Up to the time of her death she had been the absolute head of the denomination, although her authority was exercised through the Board of Directors of the Mother Church of Boston. Although no successful effort had been made to dispute Mrs. Eddy's conduct of the affairs of the denomination, disputes have several times arisen. The most serious of these was the threatened schism in 1909 of adherents of Mrs.

Augusta E. Stetson, the First Reader of the First Church of Christ, Scientist, New York City. Mrs. Stetson had for many years been at the head of this church. Charges were brought against her by several of her students that her methods of mental healing were at variance with the principles of Christian Science. Mrs. Stetson denied these charges but was brought before committees of the First Church of Christ, Scientist, Boston, and after a prolonged hearing was deprived of her right to teach and practise and of her membership in the mother Church. The majority of those who had been adherents of Mrs. Stetson signified their approval of the action of the Board of Directors and Mrs. Stetson thereupon withdrew from all connection with the church.

Mrs. Eddy left the bulk of her estate, amounting to \$2,000,000 to the Directors of the Mother Church, Boston, who are to control it for the benefit of the church. Suits had been brought at the end of the year by her son and a stepson to annul the provisions of her will.

The supreme authority of the denomination rests with the Board of Directors of the Mother Church in Boston.

**CHRISTIAN UNITY FOUNDATION.** See PROTESTANT EPISCOPAL CHURCH.

**CHRISTOPHER, A.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**CHROBAK, RUDOLPH.** An Austrian physician, died October 1, 1910. He was born in Troppau, Silesia, in 1843. He studied in Vienna, where he became professor of obstetrics in 1879. His published writings include important works on anatomy and pathology within the domain of his specialty. These works form part of the handbooks of Stricker (1869-72) and Pitha-Billroth (1885), and of Nothnagel's *Specielle Pathologie und Therapie* (1896).

**CHROMIUM.** See ATOMIC WEIGHTS.

**CHROMO-ISOMERS.** See CHEMISTRY, *Color of Dyestuffs*.

**CHROMOSOMES.** See BIOLOGY.

**CHROMOTROPY.** See CHEMISTRY, *Color of Dyestuffs*.

**CHRYSOTILE ASBESTOS.** See ASBESTOS.

**CHULALONGKORN, SOMDETH PHRA PARAMINDA MAHA.** King of Siam, died October 23, 1910. He was born in Bangkok in 1853, the son of King Paraminda Maha Mongkout. He succeeded to the throne on the death of his father in 1868. He was the ninth son and was elected to the throne by the Senabodee. As he was only fifteen years of age at the time the head of the Senabodee acted as Regent until 1873, when the King assumed his full powers. Before he ascended the throne he became proficient in the several languages spoken in India and in the Malay Peninsula, and in French and English. He was the most progressive king that had hitherto occupied the throne of Siam. As soon as the Regency was abolished and he was crowned, he began making reforms, first by cutting down the ceremony with which the approach to the King had been surrounded and then by modernizing the government. He practically abolished slavery, reduced internal taxes, opened canals and roads, established postal telegraph and telephone services, caused the erection of lighthouses along the coast of his country, surveyed and sounded navigable streams, established a new code of laws, improved the public educational systems, proclaimed religious

freedom, built hospitals and an art museum and rebuilt temples and by bringing more Europeans into the national service, strove to modernize the governmental operations in every way. During General Grant's tour of the world he visited the King of Siam at the latter's expressed desire and was entertained by him for six days. See SIAM.

**CHUN, PRINCE.** See CHINA.

**CHURCH, GEORGE EARLE.** See NECROLOGY.

**CHURCH CENSUS.** See RELIGIOUS DENOMINATIONS.

**CHURCHILL, WINSTON.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**CHURCH MEMBERSHIP, CENSUS OF.** See RELIGIOUS DENOMINATIONS.

**CHURCH PROPERTY.** See RELIGIOUS DENOMINATIONS.

**CHURCHES OF GOD.** A religious denomination, whose doctrines agree in general with those held by the Baptists. It was founded in 1830 as the result of the preaching of John Winebrenner, a German Reformed pastor at Harrisburg, Pa. The name "Winebrennerians" is sometimes given to the denomination. In 1910 there were 41,475 communicants and 595 churches, with 509 ministers. The churches are divided into 17 annual elderships, delegates from which constitute the general eldership of the Churches of God which meets every four years. The denomination is strongest in Pennsylvania, West Virginia and the States of the central West. A college is maintained at Findlay, O., and a collegiate institute at Fort Scott, Kansas. Missionary work is carried on in India. The denomination has a publishing house and book store at Harrisburg, Pa.

**CHURCH OF CHRIST, SCIENTIST.** See CHRISTIAN SCIENTISTS.

**CIGAR MAKERS' STRIKE.** See STRIKES AND LOCKOUTS.

**CIGARS AND CIGARETTES.** See TOBACCO.

**CINCINNATI, SOCIETY OF THE.** See PATRIOTIC SOCIETIES.

**CINCINNATI SYMPHONY ORCHESTRA.** See MUSIC.

**CISNEROS, SALVATOR.** See NECROLOGY.

**CITIES, STATISTICS OF.** See UNITED STATES, CENSUS OF.

**CITY CHARTERS.** See MASSACHUSETTS, CIVIL SERVICE OF.

**CITY PLANNING.** See ARCHITECTURE.

**CIVIC ASSOCIATION. AMERICAN.** An organization formed in 1904 from the combination of two national organizations which had previously existed, with similar purposes. The Association devotes its efforts to the solution of the physical as distinguished from the political problems of the communities and particularly to the individual development of the ideals of beauty and efficiency of home, town, State and national life. Its activities are conducted through various departments and included in its work have been efforts to make living conditions clean, healthful and attractive, to extend the making of public parks, to promote the opening of gardens and playgrounds for children and recreation centres for adults, to abate public nuisances, including bill boards, objectionable signs, needless noises and unpleasant and wasteful smoking factory chimneys; to preserve great scenic wonders, such as Niagara Falls and the White Mountains, from commercial spoliation.

During 1910 the Association advised and supervised many civic improvements in communities both on the Pacific and Atlantic coasts and from the northern to the southern boundaries of the United States. The Association holds annual meetings. The meeting in 1910 was held in Washington, December 14, 15 and 16. It numbered among its delegates representatives from local civic associations from every section of the country. The principal theme of the convention was the subject of planning beautiful cities and many important papers were read dealing with this subject. The officers in 1910 were as follows: President, J. Horace McFarland; first Vice-President, Clinton Rogers Woodruff; treasurer, William B. Howland; secretary, Richard B. Watrous; vice-presidents, James R. Garfield, Rev. John Wesley Hill, W. W. Hannan, George W. Marston, and Mrs. Edward W. Biddle. The headquarters of the Association are in Washington.

**CIVIC FEDERATION, NATIONAL.** An organization founded in Chicago in 1900 "to organize the best brains of the nation in an educational movement toward the solution of some of the great problems relating to social and industrial progress; to provide for the study and discussion of questions of national import; to do this under the crystallization of the most enlightened public opinion, and when desirable, to form legislation in accordance therewith." The work of the organization is done with various bureaus. Among these the most important are those having to do with compensation, industrial conciliation and welfare. The compensation bureau during 1910 gave serious attention to the question of compensation for industrial accidents. A bill was drawn which received the favorable criticism and endorsement of many large industrial employers and many leaders of organized labor. This bill is based upon the exercise of the police power of the State and is thought to be a reasonable step at the present time in providing for workmen injured under the conditions prevailing in modern industry. See EMPLOYERS' LIABILITY.

The Departments of Conciliation and Trade Agreements did much during the year to avoid breaches of industrial peace. The Department received the thanks of the Mayor of New York City for its good offices in connection with the settlement of the Express strike. See STRIKES AND LOCKOUTS. Many trade agreements were entered into during 1910 in many new industries and between many new employers and their employees. This policy, which seems to have been interrupted by the panic of 1907, acquired new vigor in 1910.

The Federation devoted during the year a large consideration to the subject of reform in legal procedure. A committee was appointed on this subject, which is coöperating with a similar committee of the American Bar Association. This joint committee is working to secure, through congressional action, a simple practice act for the Federal courts which can be used as a basis for a reformed practice act in the several States. The bill was submitted to a judiciary committee of both the House of Representatives and the Senate.

The past year witnessed a great extension of the influence of the National Civic Federation through the organization of State Councils in the following States: California, Connecticut, Florida, Georgia, Illinois, Indiana, Kansas, Ken-

tucky, Maine, Massachusetts, Missouri, Nebraska, Nevada, New Hampshire, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, Rhode Island, Tennessee, Vermont, Virginia, Washington, West Virginia, Wisconsin, District of Columbia. These Councils are to act in coöperation with the Executive Committee of the National Civic Federation. It is expected that they will render effective service in many lines and especially in securing legislation, each one in its own State, upon reasonably uniform lines in matters affecting the common life of the people of the various States.

The Welfare Department of the Federation consists of about 500 employers and many public officials. Its purpose is to interest employers in improving the conditions under which employes in all industrial occupations work and live. It deals with such subjects as sanitary work places, including systems for providing pure drinking water, better ventilation, devices for exhausting dust and removing gas, adequate lighting, safeguards against industrial accidents, emergency hospitals, locker rooms, and where women are employed, seats; emphasizes the importance of recreation, education and good housing, and of the establishment of provident funds. During 1910 over 100 employers solicited this department for advice. One company having 10,000 employes asked to have its factories inspected. An association of employers involving nineteen concerns with 70,000 employes has asked for an investigation and recommendations for improving the conditions affecting their employes.

The Woman's Welfare Department of the Federation is composed largely of women who are themselves stockholders, or who, through family relationships are financially interested in industrial organizations and who are interested in the welfare of workers in enterprises from which they draw their incomes. Especially good work was done by this Department in New York, New Jersey, North Carolina and Washington during 1910. The last named section, being at the national capital, successfully used its influence in a number of cases in improving the conditions affecting the government employes. The New York and New Jersey section conducted a valuable investigation into the subject of mercurial poisoning from which good results are anticipated. At Spray, N. C., work was done among the 10,000 operatives in the cotton mills of that city. The officers in 1910 were as follows: President, Seth Low; Vice-Presidents, Samuel Gompers, Nahum J. Bachelder, Ellison A. Smyth, Benjamin I. Wheeler; Treasurer, Isaac N. Seligman; Chairman of the Executive Council, Ralph M. Easley.

**CIVIC IMPROVEMENTS.** See ARCHITECTURE.

**CIVIL ENGINEERING.** So special and diversified are the large projects that fall under this head in progress in 1910 that it is impossible to group them together. Accordingly the reader is referred to AQUEDUCTS; BRIDGES; CANALS; CHICAGO DRAINAGE CANAL; CONCRETE DAMS; DOCKS AND HARBORS; DREDGING; FIRE PROTECTION; FOUNDATIONS; GABBAGE AND REFUSE DISPOSAL; LIGHTHOUSES; RAILROADS; ROADS AND PAVEMENTS; SANITARY ENGINEERING; WATER PURIFICATION; WATER SUPPLY; WATER WORKS.

**CIVIL SERVICE COMMISSION.** See CIVIL SERVICE.

**CIVIL SERVICE. FEDERAL CIVIL SERVICE.** At the close of 1910 nearly 300,000 employees of the government were in the classified civil service. Of these about 226,000 were in the competitive classes and were appointed for merit; about 68,000 were in the classified service having been appointed on exceptional terms with exemption from examination or without competitive examination. The unclassified service numbers about 61,000 persons, of whom about 50,000 are unskilled laborers and 2600 were census appointees.

The total number of positions in the civil service on June 30, 1909, was 342,159. Of these 9105 were presidential appointees and 333,054 belonged to other classes. Of the total number, 30,298 were in Washington and 311,861 were in the employ of the government outside of Washington.

President Taft has at all times shown himself to be in favor of the extension of the civil service system. On September 30, 1910, he issued an executive order to place in the competitive classified service the assistant postmasters in post-offices of the first and second classes, and clerks in the non free delivery post-offices of the same classes heretofore exempt. This classification, which became effective on December 1, 1910, includes 2237 assistant postmasters and 1386 clerks, or 3623 in all. In a speech before the League of Republican Clubs in New York City on October 1, 1910, he recommended the extension of the merit system to postmasters of the first, second and third classes, collectors of internal revenue, collectors of customs, surveyors of customs and appraisers. He declared that all of those offices ought unquestionably to be in the classified service. He repeated this recommendation in his message to Congress in December, 1910, and asked Congress immediately to enact a law providing that the executive shall have the power to include in the classified service all local officers outside of Washington whose appointments now require confirmation by the Senate. He also recommended a pension scheme for superannuated employees.

The extension of the merit system to the consular and diplomatic services, which took place in 1908-9, has given excellent results. A large number of the positions are filled either as the result of examination or by promotion within the service. A merit system has been recommended for army promotions by the Secretary of War. The 61st Congress had before it two civil service bills both recommended by the President, one to enact into a law executive orders applying limited competition to the diplomatic and consular services, and the other to regrade salaries throughout the entire civil service to correspond with the duties performed. An appropriation of \$100,000 was made for investigations into the methods of the departments at Washington.

**STATE CIVIL SERVICE.** Important extensions of the civil service system have been made in a number of the States. In Illinois it has been applied to the State Board of Control and to a number of cities. In Massachusetts it has been extended to penal institutions and in Boston by city ordinance, consolidating several departments, to some important positions formerly exempt. In Michigan, Detroit by a popular vote of 3 to 1 voted to amend its charter by including the provisions of the merit system. In Missouri the competitive civil service methods

have been applied to high municipal positions in Kansas City, and in Pittsburg, Pa., medical inspectors are selected through competition. In New York State the transfer tax appraisers, stock transfer clerks, and the court and trust fund examiners have been placed in the competitive class. In Illinois in the election of November on the question put upon the ballots "Shall the next General Assembly enact a comprehensive and adequate civil service reform law" the popular vote was  $3\frac{1}{2}$  to 1 in its favor. In addition to this, a large majority of both House and Senate as elected is pledged to abide by this vote and to work and vote accordingly. A new municipal code providing the civil service reform system for all cities went into effect on January 1, 1911, in Ohio.

**MERIT SYSTEM IN HIGHER MUNICIPAL OFFICES.** The question of the application of the merit system to the higher municipal offices has been urged by the National Civil Service Reform League for several years, and in 1906 a committee appointed to consider the subject submitted its first report. At that time public interest had not sufficiently advanced to justify any recommendations, but in the years following the principle had become so well established that President Taft in his message in December, 1910, made the following statement: "Officers responsible for the policy of the administration and their immediate assistants and deputies should not be included within the classified service; but in my judgment public opinion has advanced to a point where it would support a bill providing a secure tenure during efficiency for all purely administrative officials."

The nearest approach to the application of the merit system to high municipal offices is found in the provisions of the new charter of the city of Boston. This provides that the mayor shall appoint as heads of departments without regard to party affiliation persons recognized as experts or as especially fitted for the work by education, training or experience. The charter requires that the fitness of the nominee shall be approved by the Civil Service Commission. The merit system has been applied to some extent also in the new Kansas City charter. In that city the city engineer, superintendent of street cleaning, chief superintendent of water works, assessor and collector of water rates, and assistant city counsellors are selected through competition. In Chicago outside of the heads of departments there are few high grade positions which are not competitively classified. In New York the chief engineer of the board of estimate and apportionment, the chief of the fire department and superintendents of hospitals are competitive.

**NATIONAL CIVIL SERVICE REFORM LEAGUE.** An organization founded in 1881 as a federation of the various local civil service reform associations, the first of which was founded in 1877 in New York. The first president of the League was George William Curtis. Since its organization, the extension of civil service reform in the Federal, State and municipal governments has been constant. Largely due to its efforts the merit system has been applied to the consular and diplomatic services, to fourth-class postmasters, to several States and to many cities. The League has devoted special efforts to the prevention of political activity among Federal office holders. It holds annual meetings in different cities of the United States. The meeting for

1910 was held at Baltimore, December 16 and 17. The president of the League, Charles W. Eliot, made an address outlining the work of the League during the year. Among the recommendations made at this meeting were the following: The extension by executive order of the competitive examination to fourth-class postmasters; the extension of the merit system to the municipal service of the District of Columbia; legislation giving the appointment of first, second and third-class postmasters to the President alone or to the Postmaster General without confirmation by the Senate; legislation which in accordance with the recommendations of the President shall bring within the merit system the appointment and promotion of all Federal employees, excepting only officers responsible for the policy of the administration and their immediate personal assistants or deputies; the extension of the merit system of appointments and promotion to employees of legislative assemblies, National, State and municipal; the effective regulation of political activity of all non-political officers and employees; and the enactment of a comprehensive civil service law for Porto Rico. The officers of the League are; President, Charles W. Eliot; Vice-Presidents, Edwin A. Alderman, Joseph H. Choate, Harry A. Garfield, George Gray, Arthur T. Hadley, Seth Low, Franklin MacVeagh, George A. Pope, P. J. Ryan, D. D., Moorfield Storey, Thomas N. Strong, Herbert Welsh and Woodrow Wilson; Secretary, Elliot H. Goodwin; Treasurer, A. S. Frissell.

**CIVIL SERVICE REFORM LEAGUE, NATIONAL.** See CIVIL SERVICE.

**CLEMENT, CLAY.** See NECROLOGY.

**CLARK, CHARLES CAMERON.** An American railroad official, died May 25, 1910. He was born in Canandaigua, N. Y., in 1822. He graduated from Hobart College and entered the service of the Hudson River Railroad as an auditor. He later became treasurer of this road and held this position until 1871, when he was elected 1st Vice President. The road had at this time been consolidated with the New York Central. He took an interest in art and scientific subjects and was a director of the Metropolitan Museum of Art, American Museum of Natural History and the American Geographical Society.

**CLARK, EDWARD LORD.** An American Congregational clergyman, died February 5, 1910. He was born at Nashua, N. H., in 1838 and graduated from Brown University in 1858. He studied at the Andover Theological Seminary, graduating in 1863. Two years previously he had been ordained to the Congregational ministry. In 1861-2 he was chaplain of the Twelfth Massachusetts Volunteers and from 1863 to 1866 was pastor of the First Church of North Bridgewater, Massachusetts. From 1867 to 1873 he was pastor at New Haven, Conn. He was pastor of the Presbyterian Church of the Puritans, New York City, from 1873 to 1893 and of the Central Congregational Church of Boston from 1893 to 1902. He travelled extensively, and published *Daleth-Egypt*, illustrated (1863) and *Israel in Egypt* (1873).

**CLARK, GALEN.** An American naturalist, died March 24, 1910. He was born in Dublin, N. H., in 1814. In 1853 he went to California by the Panama route. For a time he worked in the placer mines of the State, and while engaged on the South Fork of the Mercer River at a

point not far from the Yosemite Valley, he became interested in that wonderful valley, and as early as 1857 began guiding parties of tourists there, spending his winters in a cabin which he built at a point now known as Wawona. In 1864 when tourist travel had considerably increased, he opened a small hotel at this place. When the California legislature took its first action for the care and preservation of the Yosemite Valley, Clark was one of the original board of Commissioners created under the law of 1865. He was also made guardian of the park at that time. He was afterwards succeeded by another, but about twenty years previous to his death he was reappointed. He then made the park his permanent home. In 1857, while on a hunting trip, he discovered the great redwood growth at Mariposa. Soon after that he devoted much of his time to exploring the upper heights of the Sierra Nevada Mountains and made known to the world the beauties of that region. He was an intimate friend of John Burroughs, John Muir, Joseph Le Conte and many other eminent scientists. He was regarded by them as a high authority on the geology and natural wonders of the Sierra Nevada Mountains.

**CLARK, JOHN WILLIS.** An English zoölogist, registrar of Cambridge University until September, 1910, died October 10, 1910. He was born in 1833 and was educated at Eton and at Trinity College, Cambridge. After taking his degree he travelled extensively on the Continent. He lived at Cambridge for more than seventy-five years and was one of the most conspicuous figures in the university community. For twenty-five years he was superintendent of the Museum of Zoölogy during which time he did much for the promotion of the study of natural sciences at Cambridge. He made many contributions to zoölogy. His special interest lay in marine mammals and he published several scientific papers on the anatomy and habits of the narwhal, and on the dolphins and on the extinct rhytina. In addition to his work at the Museum he wrote essays on a great variety of subjects, topographical, biographical, bibliographical and antiquarian. He became registrar of the university in 1891.

**CLARKE, CRESTON.** An American actor, died March 21, 1910. He was born in Philadelphia in 1865 and received his education in London and Paris, where he accompanied his father, John Sleeper Clarke, who was also an actor. His first appearance on the stage was at the Adelphi Theatre in London, where he acted the part of Francois in *Richelieu*, in the company of his uncle, Edwin Booth. He played in London until 1886, when he joined Lester Wallack's stock company in New York and remained there until that company went out of existence, when he became a member of Augustin Daly's stock company. After one year he became head of his own company and played in many prominent parts, among them, Hamlet. At the head of his company he toured the country for the next ten years, playing a repertoire which included several of Shakespeare's plays. In 1897 he wrote a play called *The Last of His Race*. In 1906 he played the title role in *Monsieur Beaucaire*.

**CLARUS.** See CHEMISTRY, INDUSTRIAL, paragraph *Alloys*.

**CLASSICAL PHILOLOGY.** See PHILOLOGY.

**CLASSICS.** See PHILOLOGY.

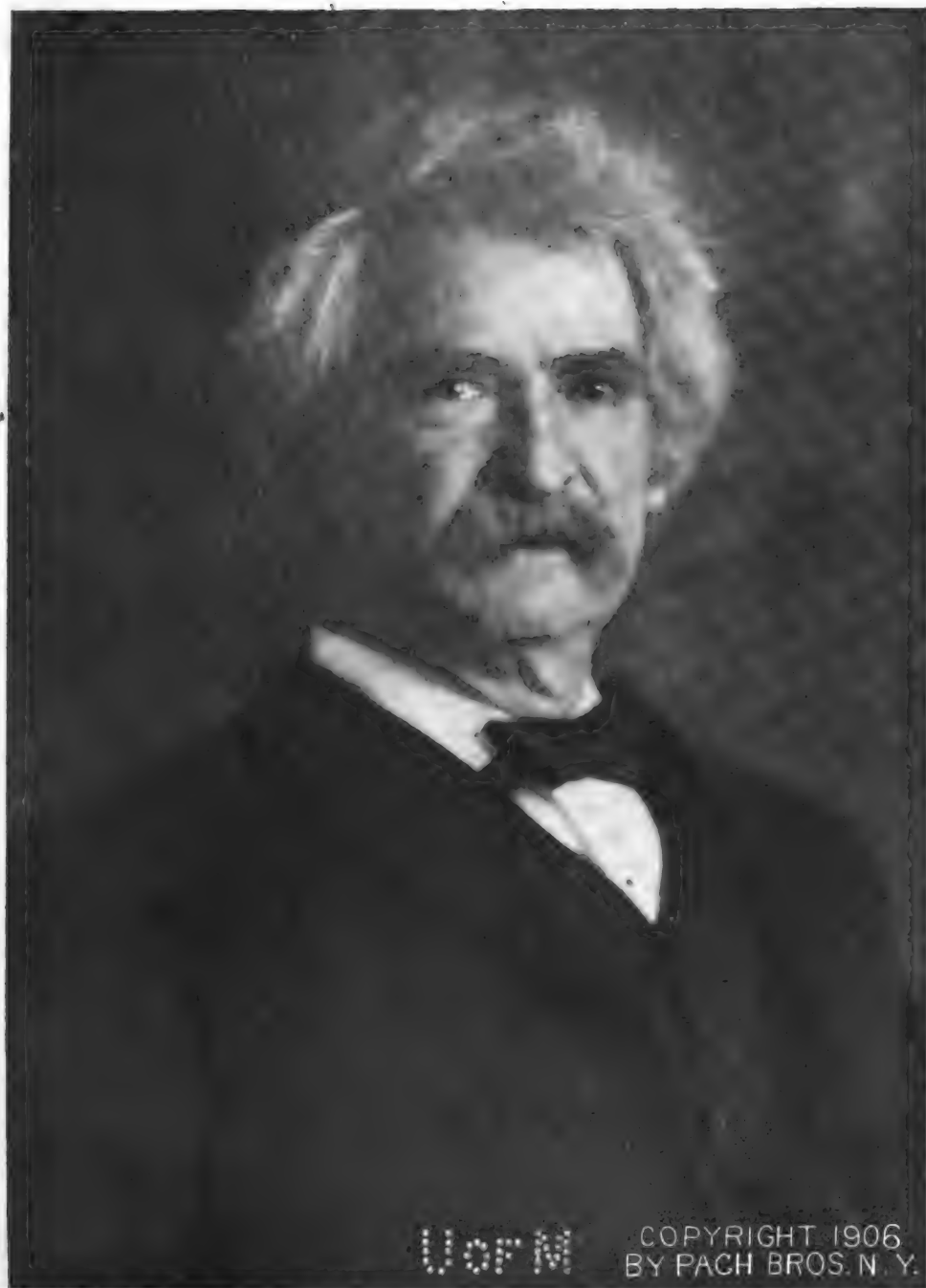
**CLAY, ALEXANDER STEPHENS.** United States Senator from Georgia, died November 13, 1910. He was born on a farm in Cobb county, Ga. in 1853 and graduated from Hiwassee College in 1875. He studied law and was admitted to the bar in 1877. He remained in active practice at Marietta, Ga., to the time of his death. From 1880 to 1882 he was a member of the city council and from 1884 to 1887 he was a member of the General Assembly. He was also a member of the Assembly in 1880-90. He served as Speaker two terms. He was elected to the State Senate and served as president of that body from 1892 to 1894. From 1894 to 1897 he was chairman of the Democratic State Executive Committee. He was elected to the United States Senate in 1897 and was re-elected in 1903 and 1909. Senator Clay was a member of the Committee on Appropriations in the Senate and of the Post Office Committee. He was one of the most prominent and influential of the Democratic senators and he took an active part in the work of the special session which passed the Payne-Aldrich tariff and in the deliberations of the second session of the 61st Congress, although for the greater part of the time he was suffering from ill health. He was one of the readiest debaters in the Senate and was often heard on public questions.

**CLAY, A. T.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**CLEARINGS, BANK.** See BANKS.

**CLEMENS, SAMUEL LANGHORNE** (Mark Twain). The most famous of American humorists, died April 21, 1910. He was born in Florida, Monroe county, Missouri, a small town about 100 miles northwest of St. Louis, on November 30, 1835. His father was a man of some education and social importance, according to the standards of the frontier in the early part of the 19th century. Five years before the birth of his son he had removed to Florida, believing that the site could be made of great commercial importance. He failed, however, to induce Congress or individuals to improve the river, a measure which was necessary to make it navigable up to that point, and in 1838 removed to Hannibal, Mo., a town on the Mississippi about 125 miles above St. Louis. There young Clemens learned to know and love the river which so frequently and prominently appeared in his stories. He went to the village school in Hannibal and in vacation explored the glens, cliffs and marshy shores of the Mississippi. These scenes he afterwards made memorable in *Tom Sawyer* and *Huckleberry Finn*. He had no schooling beyond the most rudimentary branches, and at 12 years of age he went into the composing room of the *Hannibal Weekly* to learn the printer's trade. He soon became an expert compositor. In the absence of the editor he was accustomed to insert surreptitiously some of his own writings, among them verses. These on examination are found to have been of no particular merit. His desire for change led him to leave Hannibal and before he was 16 years of age he had worked in the composing rooms of newspapers in St. Louis, Cincinnati, Philadelphia and New York. The river, however, fascinated him, and in 1851 he returned to Hannibal, determined to become a pilot. For this it was necessary to take a course of instruction under a master pilot, and this required \$500 as the price of his tuition. The young man did not have this amount

available and he worked for several years to accumulate it. In 1857 he was able to begin the course of instruction and two years later he had a pilot's license. He came to be considered one of the most skillful pilots on the river. In 1861 he enlisted in the Confederate army with General Sterling Price, but after a few months returned to St. Louis and joined his brother, Orrin, who had been appointed Secretary of the Territory of Nevada, and he accompanied the latter as his clerk, to Carson City. There were at that time gold discoveries in a camp called Aurora, and Mr. Clemens went to that place. He made no discoveries of importance in mining, but he made many acquaintances with original characters who frequented the gold diggings, and he accumulated much material which he afterwards used in *Roughing It*. After a year in this camp he went to Virginia City and took a place on the *Enterprise*, a morning daily paper. There were on the staff of this journal two men who notably affected Mr. Clemens's later career and work. One was a scholar and writer of some talent, who contributed to newspapers and periodicals under the name of Dan De Quille. He soon noted in Mr. Clemens's work a rare humorous vein and urged him to develop it. Dennis McCarthy, a San Francisco newspaper man, was also a member of the *Enterprise* staff, and he, too, encouraged Mr. Clemens to write in his original vein. Soon signed articles appeared in the *Enterprise* over the name "Mark Twain," a name derived from calls used in taking soundings on the Mississippi River. It had previously been taken as a pen-name by Captain Isaiah Sellers in the New Orleans *Picayune*. These stories soon attracted attention and in 1865 Clemens went to San Francisco and joined the staff of the *Call*. Here he remained for only six months and then went to a mining camp in Calaveras county. Here he found the material for stories which gave him his first fame east of the Rocky Mountains, including perhaps the most famous of all his short stories, *The Jumping Frog of Calaveras County*. In 1866 he went to the Sandwich Islands and wrote from there some sketches for the *Sacramento Union*. These sketches were used as the basis for his first lectures, delivered in San Francisco, after his return from Honolulu. In 1867 other stories, including *The Jumping Frog*, were published and Mark Twain became known in the eastern States as a writer of exaggerated humor. This reputation prompted certain newspaper editors to select him to go with a party of tourists upon a journey abroad and write letters for those papers. This trip resulted in 1869 in the publication of *Innocents Abroad*, which was an extended revision of the letters. This book brought the writer instant fame in the United States and most of the countries of Europe. Shortly after his return he became editor of the *Buffalo Express*, but remained in Buffalo only two years. During his stay in that city he married Miss Olivia Langdon, whose acquaintance he had made on the ocean voyage. He then removed to Hartford, Conn., and at once began to work with the material which he had accumulated in the West. In 1872 he published *Roughing It*, which established his reputation as a story writer and humorist, and his work was urgently demanded by editors and publishers on both sides of the Atlantic. He contributed frequently to the magazines and wrote, in the fol-



**SAMUEL LANGHORNE CLEMENS**  
("MARK TWAIN")

1861

lowing year, in collaboration with Charles Dudley Warner, *The Gilded Age*, which was soon successfully dramatized. The next book which came from his pen was the one which many American and nearly all English critics consider his best work of fiction, *The Adventures of Tom Sawyer* (1876). In 1880 he made a second trip to Europe, which furnished material for *A Tramp Abroad*. This was followed by *The Stolen White Elephant* (1882); *The Prince and the Pauper*, a historical romance (1882); and *Life on the Mississippi* (1883). In 1884 Mr. Clemens invested largely in the publishing enterprise of the Charles L. Webster Company, which had contracted to pay Mrs. U. S. Grant \$500,000 for the copyright of General Grant's autobiography. This firm, ten years later, failed, with large liabilities. Although Mr. Clemens had no personal responsibility for these debts, he determined to defray them, and although his health was far from good, he started on a lecture tour of the world. This was a great success both financially and otherwise. The author was received everywhere with high social, and, sometimes, with civic honors, and the profits of the tour enabled him to pay the debts of the publishing firm with a considerable remainder for himself. For ten years after 1890 Mr. Clemens lived chiefly in Europe. During this period he published *A Connecticut Yankee at King Arthur's Court* (1889); *An American Claimant* (1892); *Merry Tales* (1892); *The \$1,000,000 Bank Note* (1893); *Pudd'nhead Wilson* (1894); *Tom Sawyer Abroad* (1894); *Personal Recollections of Joan of Arc* (1896); *More Tramps Abroad* (1897); *Following the Equator* (1897); and *The Man that Corrupted Hadleyburg* (1900). On his return to the United States he lived for a short time in New York City and then had built for him in 1908 a beautiful villa in Redding, Conn. He was a prominent figure in the social and literary life of New York during the period from 1904 to 1908. During this time he was at work on an autobiography which he announced should not be published in full until 100 years after his death. Some extracts, however, were printed in the *North American Review* and other periodicals. He suffered great bereavement in the loss of his wife in 1904. His daughter, Susan Clemens, died in 1906, and another daughter, Jean, in 1909. One daughter, who in 1909 married Ossip Gabrilowitsch, the famous pianist, alone of his immediate family, survived him at his death. Although popularly known as a humorist, Mr. Clemens had a thoroughly serious side to his character as was shown in later years by his public discussions and articles or speeches on various questions that had aroused his sympathy or indignation. But his best and perhaps his most prominent work was done as a picaresque novelist in *The Adventures of Tom Sawyer* and *The Adventures of Huckleberry Finn*. It is said, however, that he considered his best work *The Personal Recollections of Joan of Arc*, which was a historical novel. In addition to the works mentioned above, he wrote *A Double-Barreled Detective Story*, published in 1902; *A Don's Tale* (1903); *Ere's Diary* (1905); *The Horse's Tale* (1906); *The \$30,000 Bequest* (1906); *Christian Science* (1907) and *Who Was Shakespeare?* (1909). Mr. Clemens received many honors from universities in the United States and abroad. He received the degree of L. H. D. from Yale University in 1901,

L. L. D. from the University of Missouri in 1902, and Litt. D. from Oxford University in 1907. He was, without question, the most popular writer in America at the time of his death and it may be doubted if any writer in the world had more popularity or was more widely read than he.

**CLEPHANE, JAMES OGILVIE.** See **NECROLOGY**.

**CLEVELAND, OHIO.** See **OHIO**.

**CLEVELAND, Dr. F. A.** See **UNITED STATES, Administration**.

**CLIMATE.** See **METEOROLOGY**.

**CLOAKMAKERS' STRIKE.** See **STRIKES**.

**CLOSED SHOPS.** See **LABOR, AMERICAN FEDERATION OF, and INFUNCTIONS**.

**CLUTTON-BROCK, A.** See **LITERATURE, ENGLISH and AMERICAN, Biography**.

**COAL.** The statistics of coal production as collected jointly by the United States Geological Survey and the Bureau of the Census show that in 1909 the output amounted to 459,209,073 short tons. Compared with the record for 1908, when the production amounted to 415,842,698 short tons, the record for 1909 shows an increase of 44,039,650 short tons, or 10 per cent. All of the gain was in the production of bituminous coal, which increased from 332,573,994 short tons in 1908 to 378,551,024 short tons in 1909—a gain of 45,977,080 short tons. The production of anthracite in Pennsylvania decreased from 74,347,102 long tons (equivalent to 83,268,754 short tons) in 1908 to 72,015,222 long tons (equivalent to 80,658,049 short tons) in 1909.

Pennsylvania made the largest increase in the production of bituminous coal, showing a gain of 20,666,288 short tons, from 117,179,527 short tons in 1908 to 137,845,815 tons in 1909. West Virginia for the second time in its history exceeded Illinois, and became the second State in the production of coal, the former having an output in 1909 of 51,446,010 short tons, and the latter an output of 50,970,364 short tons. West Virginia's production increased 9,548,167 short tons over 1908. The output of Illinois, which stood third in rank, increased only 3,310,674. Ohio retained its position as fourth in rank with a production in 1909 of 27,919,891 short tons, against 26,270,639 in 1908. Indiana, which in 1908 supplanted Alabama as fifth in rank, strengthened its position in 1909 by an increase of 2,566,809 tons, from 12,314,890 tons in 1908 to 14,881,699 tons in 1909, while Alabama gained 2,099,317 tons, from 11,604,593 tons to 13,703,910 tons. Other significant increases were in Colorado, 1,087,773 tons; Wyoming, 890,995 tons; Kansas, 734,270 tons; Montana, 640,082 tons; Iowa, 594,052 tons, and Washington, 551,463 tons. Georgia, Idaho, Maryland, Michigan, Missouri, and Texas showed a smaller production in 1909 than in 1908, the total decreases amounting to about 750,000 tons.

The table on next page shows the production in 1908 and 1909, by States, with comparisons. The figures for 1909 are subject to slight modifications but are substantially complete.

According to reports received by the United States Geological Survey from coal-mine operators and others familiar with the industry, the production of coal in the United States during 1910 was between 475,000,000 and 485,000,000 short tons, a considerable increase from the output of 459,715,704 short tons in 1909 and approximately within 1 per cent. of the maxi-

mum previous record of 480,363,424 tons, produced in 1907.

# PRODUCTION OF COAL, BY STATES, IN SHORT TONS

State or Territory.	1908.	1909.	Increase (†) or decrease (-), 1909.
Alabama	11,604,593	13,703,910	† 2,099,317
Arkansas	2,078,357	2,379,100	† 300,743
California and Alaska	21,862	48,636	† 26,774
Colorado	9,634,973	10,722,746	† 1,087,773
Georgia	264,822	211,196	- 53,626
Idaho	5,429	4,553	- 876
Illinois	47,659,690	50,970,364	† 3,310,674
Indiana	12,314,890	14,881,699	† 2,566,809
Iowa	7,161,310	7,755,362	† 594,052
Kansas	6,245,508	6,979,778	† 734,270
Kentucky	10,246,553	10,648,981	† 402,428
Maryland	4,377,093	4,037,343	- 339,750
Massachusetts	50	0	- 50
Michigan	1,835,019	1,783,692	- 51,327
Missouri	3,317,305	3,096,785	- 220,520
Montana	1,920,190	2,560,272	† 640,082
New Mexico	2,467,937	2,808,325	† 340,388
North Dakota	320,742	404,496	† 83,754
Ohio	26,270,839	27,919,891	† 1,649,052
Oklahoma	2,948,116	3,116,500	† 168,384
Oregon	86,259	90,228	† 3,969
Pennsylvania	117,179,527	137,845,815	† 20,666,288
Tennessee	6,199,171	6,328,073	† 128,902
Texas	1,895,377	1,824,440	- 70,937
Utah	1,846,792	2,269,481	† 422,689
Virginia	4,259,042	4,756,045	† 497,003
Washington	3,024,943	3,576,406	† 551,463
West Virginia	41,897,843	51,446,010	† 9,548,167
Wyoming	5,489,902	6,380,897	† 890,995
Total bituminous	332,573,944	378,551,024	† 45,977,080
Pennsylvania anthracite	83,268,754	80,658,049	- 2,610,705
Grand total	415,842,698	459,209,073	† 44,039,650

The most important factor influencing the coal-mining industry in 1910 was the prolonged strike in Illinois and the Southwestern States. This strike or suspension, which started on April 1 pending an adjustment of the wage scale, was not finally settled until September 15, and after that date much time was lost in putting the mines into condition for operation, so that the period of idleness in the mines affected was fully six months. The settlement was a practical surrender of the operators to the demands of the miners, with an increase of 5.55 per cent in wages. A similar increase was granted in a number of other States, either before the strike was called or during the suspension or subsequent to it. During the idleness many of the miners who were on strike in Illinois obtained employment in the mines of competitive States and helped to increase the output of those States, which offset the shortage in the States affected.

Notable increases in production were made in the western counties of Kentucky, in western Pennsylvania, and in Ohio, West Virginia, Alabama, Colorado, New Mexico, and Montana. The States whose production was reduced by the strike were Illinois, Kansas, Missouri, Arkansas and Oklahoma. It was claimed by the miners' organization that on June 1, 1910, 70,000 miners were idle in Illinois, and 35,000 in the Southwest—that is, in Kansas, Missouri, Arkansas, Oklahoma and Texas. About the middle of May the operators of two important districts in Illinois seceded from the Illinois Coal Operators' Association, which was in contest with the miners' union, accepted the miners' terms, and went to work. Other mines which were not

represented in the association were also operated during the strike, so that from 25 to 30 per cent. of the normal output of the State was being produced at the time the strike was ended, and this continuous production was a potent factor in bringing the operators to terms with the miners.

Of the total production in 1910 the anthracite mines of Pennsylvania contributed nearly 83,000,000 short tons and the bituminous mines between 390,000,000 and 400,000,000 tons.

The coal production in 1910 as gathered from various sources by the *Engineering and Mining Journal* is shown in the accompanying table:

# PRODUCTION OF COAL IN THE UNITED STATES

States.	1910 a Short Tons.
<b>Bituminous:</b>	
Alabama	15,060,000
Arkansas	1,200,000
California and Idaho	20,000
Colorado	12,089,447
Georgia	280,000
Illinois	50,000,000
Indiana	15,692,089
Iowa	7,660,000
Kansas	5,750,000
Kentucky	13,723,235
Maryland	4,800,000
Michigan	1,820,000
Missouri	3,000,000
Montana	3,050,000
New Mexico	3,618,665
North Dakota	390,000
Ohio	32,500,000
Oklahoma	3,400,000
Oregon	80,000
Pennsylvania	144,365,816
Tennessee	7,009,000
Utah	2,526,093
Texas	4,050,100
Virginia	4,980,000
Washington	3,510,207
West Virginia	59,990,300
Wyoming	5,460,200
Alaska and Nevada	10,000
Total bituminous	403,533,152
<b>Anthracite</b>	
Colorado	70,586
New Mexico	8,000
Pennsylvania	80,310,720
Total anthracite	80,389,306
Grand total	483,922,458

(a) For the fiscal year ending June 30.

**COAL MINING ACCIDENTS.** The United States Geological Survey gathered in 1910 statistics of accidents in the coal mines of the United States during 1909, with a review of the statistics of coal mining accidents since 1884. The fatal accidents in 1909 numbered 2412 as compared with 2450 in 1908. In 1909 there were 7979 persons injured in the coal mines of the United States as compared with 6772 in 1908. There was therefore a decrease of fatal accidents, while the non-fatal accidents increased in number. The largest number of men killed in 1909 was in the mines of Pennsylvania, where 567 persons perished in the anthracite mines and 506 in the bituminous mines. West Virginia was second in the number of fatalities with 364 men killed and 1032 injured. Then followed in the order named, Georgia, Alabama and North Dakota with these numbers respectively, 364, 213, and 115 killed.

As to the causes of these fatalities the opinion is prevalent that the dangers from explosions and from fire and suffocation are the greatest to which workers in the coal mines are exposed. Such, however, is not the case. While fires

and explosions are bound to occur so long as coal is mined, for the industry as a whole the number of victims of fire and explosion was comparatively few. The greatest danger to which the miner is exposed is that from falls of roof and coal, and this danger is materially increased from the weakening of the roof and the shattering of the coal left as supporting pillars when excessive charges of powder are used. In 1909 out of the 2412 killed, 1191 or 45 per cent. were victims of roof or coal, and of the 7979 non-fatally injured, 3280 or 40 per cent. were due to these causes. Only 14 per cent. of the deaths and less than 5 per cent. of the injuries were due to explosions of dust or gas or combinations of the two. As indicating the relatively slight fatal character of explosions as compared with other causes of coal mining accidents, it is to be noted that in the explosions that occurred in 1909, 341 were killed and 331 injured. In the accidents due to windy or blown out shots and to explosions of powder or dynamite, 108 were killed and 217 injured. Falls of coal and roof killed 1191 and injured 3280, while in the accidents due to miscellaneous causes 759 were killed and 3875 were injured.

The most serious disaster which occurred during the calendar year 1909 was a fire at the Cherry Mine of the St. Paul Coal Company at Cherry, Illinois. In this disaster 393 men were burned or suffocated. In an explosion at the Lick Branch Colliery of the Pocahontas Consolidated Collieries Company near Bluefield, W. Va., on January 12, 1909, 69 men were killed and one was injured.

To the close of 1909, so far as statistics are available, 30,276 men were killed in the coal mines of the States and 72,585 were injured. Of those killed the deaths of 14,510 were due to falls of roof and coal and 9732 to other causes.

The question of the prevention of coal mine accidents was the principal matter of discussion at all meetings of coal miners in 1910. The Federal Bureau of Mines established in 1910 has special charge of matters relating to the prevention of accidents in mines, and it is anticipated that great good will result from the investigations and recommendations of the Bureau. During the year use was made of rescue cars as an adjunct of the work of the Bureau, and engineers and men in charge administered relief at many mine disasters during the year. The use of acetylene mine lamps became more common than in years previous, and with good results. See STRIKES AND LOCKOUTS.

**COAST ARTILLERY.** See MILITARY PROGRESS.

**COASTWISE TRADE.** See UNITED STATES, Commerce.

**COATES, HENRY TROTH.** An American publisher, died January 22, 1910. He was born in Philadelphia in 1843 and graduated from Haverford College in 1862. He engaged in the business of publishing in 1868 and continued as a member of the firms of Porter & Coates, and Henry T. Coates & Co. until the time of his death. He edited many works, among which are the *Fireside Encyclopedia of Poetry*; *Children's Book of Poetry*, and *The Comprehensive Speaker*. He was the author of a *Short History of the American Trotting and Pacing Horse*.

**COBALT.** See ATOMIC WEIGHTS.

**COBB, HENRY NITCHE.** See NECROLOGY.

**COCAINE HABIT.** No diminution was ap-

parent in the prevalence of the cocaine habit during 1910, although many "crusades" against its use were carried out, and many offenders against the illegal vending of cocaine were fined or jailed. An alarming state of affairs was discovered in Philadelphia, through the investigations of the State Pharmaceutical Board, as a result of which more than a score of druggists were arrested and held in bonds, and the United States government inspector of drugs at the port of Philadelphia was also apprehended. It was learned that the drug was not only being distributed to cocaine habitués, but even sold to school children. In examining the accounts of wholesale dealers as to the amount of cocaine sold, it was found that one had disposed of 1900 ounces of the drug in one month, while the sales of another dealer amounted to 1400 ounces. At this rate, the yearly sales would total between 15,000 and 20,000 ounces, which is a good deal more than would normally be demanded.

In St. Louis, it was reported that cocaine was being sold generally and the cocaine traffic flourished openly. In November seventeen individuals were arrested and charged with selling or using cocaine. A reporter for a local paper purchased nine packages of cocaine in the course of twenty-four hours.

Governor Hughes of New York State signed a bill providing that persons who sell or furnish cocaine or eucaine, as permitted by law on a physician's prescription, shall, at the time of the sale, give to the purchaser a certificate stating the seller's name and address, the name and address of the physician on whose prescription the drug was furnished, and the date of sale and the amount sold.

**COCHIN-CHINA.** A state of French Indo-China (q. v.) constituting in itself a separate French colony. Area, 21,988 sq. miles. Population (1901) 2,968,529, of whom 2,551,986 were natives of Cochin-China, 231,902 Cambodians, 92,075 Chinese, 4932 French, 2537 French troops, 2667 native troops. Saigon, the capital, has about 50,870 inhabitants (5500 French); Cholon, 130,000. There are 380 schools, with 19,000 pupils. Buddhists, 1,688,270; Roman Catholics, 73,234. The delta regions are very fertile; rice is the principal crop, covering about 1,358,706 acres and yielding in 1909 1,500,000 tons. The fisheries products are valued at 2,800,000 francs yearly. Saigon has the largest trade in French Indo-China. Imports and exports are included with those of French Indo-China, as are also financial statistics. Lieutenant-governor (1910), M. Rodier.

**COCHRAN, MORRIS J.** See NECROLOGY.

**COCOS, OR KEELING ISLANDS.** A group of about 20 small coral islands administratively attached to the Straits Settlements and annexed to Singapore (they lie 1200 miles southwest of Singapore). Area, 9 sq. miles; population (1904) 640.

**CO-EDUCATION.** See EDUCATION; TUFTS COLLEGE AND UNIVERSITIES AND COLLEGES.

**COGNAC.** See LIQUORS, FERMENTED AND DISTILLED.

**COINAGE OF GOLD AND SILVER.** See UNITED STATES.

**COINS, FOREIGN, VALUE OF.** The following table gives the value of foreign coins in United States currency on Dec. 31, 1910:

## VALUE OF FOREIGN COINS

Country.	Legal standard	Monetary unit.	Value in terms of U.S. money	(a) Remarks.
Argentine Republic ...	Gold .....	Peso .....	\$.965	Currency. Depreciated paper, convertible at 44 per cent of face value.
Austria-Hungary ....	Gold .....	Crown .....	.203	
Belgium .....	Gold and silver...	Franc .....	.193	Member of Latin Union; gold is the actual standard.
Bolivia .....	Gold .....	Boliviano .....	.389	12 1/2 bolivianos equal 1 pound sterling.
Brazil .....	Gold .....	Milreis .....	.546	Currency; Inconvertible paper; exchange rate, approximately, \$0.3245.
British Colonies in Australasia and Africa.	Gold .....	Pound sterling .....	4.8665	
Canada .....	Gold .....	Dollar .....	1.000	
Central Amer. States:				
Costa Rica .....	Gold .....	Colon .....	.465	
British Honduras .....	Gold .....	Dollar .....	1.000	
Guatemala .....	Silver.....	Peso .....	.403	Currency; Inconvertible paper, much depreciated and subject to wide fluctuations.
Honduras .....				
Nicaragua .....				
Salvador .....				
Chile .....	Gold .....	Peso .....	.365	Currency; Inconvertible paper; exchange rate, approximately, \$0.2189.
		Amoy .....	.661	
		Canton .....	.659	
		Chefoo .....	.632	
		Chin Kiang .....	.646	
		Fuchau .....	.612	
		Haikwan .....	.673	
		(Customs).		
		Hankow .....	.619	
China .....	Silver.....	Tael....	.641	
		Kiao-Chau .....	.655	
		Nanking .....	.620	
		Niuchwang .....	.636	
		Ningpo .....	.645	
		Peking .....	.604	
		Shanghai .....	.611	
		Swatow .....	.665	
		Takau .....	.041	
		Tientsin .....	.435	
		Hongkong .....	.435	
		British .....	.435	
		Mexican .....	.433	
Colombia.....	Gold .....	Dollar .....	1.000	Currency; Inconvertible paper; exchange rate, approximately, \$100 paper to \$1 gold.
Denmark.....	Gold .....	Crown .....	.268	
Ecuador .....	Gold .....	Sucre .....	.437	
Egypt .....	Gold .....	Pound (100 piasters)	4.943	The actual standard is the British pound sterling; which is legal tender for 97 1/2 piasters.
Finland.....	Gold .....	Mark .....	.193	
France.....	Gold and silver...	Franc .....	.193	Member of Latin Union; gold is the actual standard.
German Empire .....	Gold .....	Mark .....	.238	
Great Britain .....	Gold .....	Pound sterling .....	4.8665	
Greece .....	Gold and silver...	Drachma .....	.193	Member of Latin Union; gold is the actual standard.
Haiti .....	Gold .....	Gourde .....	.965	Currency; Inconvertible paper; exchange rate, approximately, \$0.195.
India (British).....	Gold .....	Rupee .....	.324 1/2	(15 rupees equal 1 pound sterling).
Italy .....	Gold and silver...	Lira .....	.193	Member of Latin Union; gold is actual standard.
Japan .....	Gold .....	Yen .....	.498	
Liberia .....	Gold .....	Dollar .....	1.000	Currency; Depreciated silver token-coins. Customs duties are collected in gold.
Mexico.....	Gold .....	Peso .....	.498	
Netherlands .....	Gold .....	Florin .....	.402	
Newfoundland.....	Gold .....	Dollar .....	1.014	
Norway .....	Gold .....	Crown .....	.268	
Panama.....	Gold .....	Balboa .....	1.000	
Persia .....	Gold and silver...	Kran .....	.1704	This is the value of the gold kran. Currency is silver circulating above its metallic value; exchange value of silver kran, approximately \$0.088.
Peru.....	Go'd .....	Libra .....	4.8665	
Philippine Islands .....	Gold .....	Peso .....	.500	
Portugal .....	Gold .....	Milreis .....	1.080	Currency; Inconvertible paper; exchange rate, approximately, \$1.00.
Rumania .....	Gold .....	Leu .....	.193	
Russia .....	Gold .....	Ruble .....	.515	
Santo Domingo .....	Gold .....	Dollar .....	.1000	
Servia .....	Gold .....	Dinar .....	.193	
Siam .....	Gold .....	Tical .....	.3708	
Spain .....	Gold and silver...	Peseta .....	.193	Valuation is for the gold peseta; currency is silver circulating above its metallic value; exchange value, approximately \$0.1794.
Straits Settlements ....	Gold .....	Dollar .....	.421	
Sweden .....	Gold .....	Crown .....	.268	
Switzerland .....	Gold .....	Franc .....	.193	Member of Latin Union; gold is the actual standard.
Turkey .....	Gold .....	Piaster .....	.044	
Uruguay .....	Gold .....	Peso .....	1.034	
Venezuela .....	Gold .....	Bolivar .....	.193	

a The exchange rates shown under this heading are recent quotations and given as an indication of the values of currencies which are fluctuating in their relation to the legal standard. They are not to take the place of the Consular certificates where it is available

**COKE.** The production of coke in 1910 according to the figures obtained by the *Engineering and Mining Journal* from various sources was 35,625,865 short tons as compared with the production in 1909 of 35,076,902 short tons. The production of the various States in 1909-10 is shown in the accompanying table by the same authority.

PRODUCTION OF COKE IN THE UNITED STATES

States.	1909	1910.
Alabama.....	2,521,000	3,300,000
Colorado.....	1,091,882	1,190,901
Georgia and North Carolina..	50,000	62,000
Illinois.....	425,970	390,000
Kansas.....	12,000	10,000
Kentucky.....	38,849	58,700
Missouri.....	5,000	5,000
Montana.....	42,960	58,200
New Mexico.....	430,000	510,000
Ohio.....	250,000	260,000
Oklahoma.....	38,620	30,000
Pennsylvania.....	23,098,483	22,875,000
Tennessee.....	255,900	240,000
Utah.....	346,510	146,064
Virginia.....	1,294,942	1,310,000
Washington.....	42,335	40,000
West Virginia.....	3,125,451	3,250,000
Other States (a).....	2,007,000	1,890,000
Total.....	35,076,902	35,625,865

(a) Includes output of by-product coke for Massachusetts, Maryland, Minnesota, New York, Michigan, Wisconsin.

There was a marked difference in the conditions governing the coke industry at the close of 1910 when compared with the last months of 1909. In the former period the steel business was favorable and coke prices had advanced to \$3 a ton at the ovens. Coke prices at the end of 1910 were in the neighborhood of \$2 a ton at the ovens, with a limited demand. In the latter part of 1909 the industry was greatly hampered by the lack of labor and the scarcity of water. Shipments were also handicapped by a shortage of cars for shipping. In 1910 these conditions were much more favorable. There was an abundance of labor, and indeed there was a considerable exodus of laborers from the Pennsylvania coke regions, many of these returning to European countries. It will be seen from the table that Pennsylvania continued far in the lead in the production of coke, followed by West Virginia, Alabama, Virginia, Colorado and New Mexico in the order named.

**COLE, LUCIUS A.** See NECROLOGY.

**COLGATE UNIVERSITY.** An institution of higher learning at Hamilton, N. Y., founded in 1819. The enrollment in 1910-11 was as follows: College 360; theological seminary, 40; academy, 140. The members of the faculty numbered 45. During the year William Henry Allison, Ph. D., was appointed professor of ecclesiastical history and dean of the theological faculty in place of Sylvester Burnham, D. D., resigned. Professor F. C. French, Ph. D., was made professor of philosophy. The benefactions during the year amounted to \$49,000. The productive funds amounted approximately to \$2,000,000 and the total income from all sources to about \$225,00. During the year the steam heating plant was extended to all buildings of the institution and the old dormitories were modernized. Professor Melbourne S. Read of the chair of psychology and education was made secretary of the college. The President is Elmer Burritt Bryan.

**COLLECTIVE AGREEMENTS.** See TRADE UNIONS.

**COLLEGE CHESS TOURNAMENT.** See CHESS.

**COLLEGES.** See UNIVERSITIES AND COLLEGES, and under individual heads.

**COLLEGES, AGRICULTURAL.** See AGRICULTURAL EDUCATION.

**COLLINS, DAVID.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**COLLINS, LOTTIE.** See NECROLOGY.

**COLLINS, W. W.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**COLOMBIA.** A northwestern republic of South America. The capital is Bogotá.

**AREA, POPULATION, ETC.** The area is variously estimated at from 435,100 to 465,700 square miles. In 1905 the country was divided into 15 departments and four territories. In 1908 a redivision into 27 departments and two territories was adopted. In December, 1909, a law was enacted providing that, beginning April 1, 1910, the political divisions should be the same as they were on Jan. 1, 1905, viz., nine departments and four territories. A decree of April 16, 1910, established 13 departments. Accordingly, it seems hazardous to be dogmatic upon Colombia's internal boundaries. In addition to the large divisions, there is the small national district containing the capital. The population of the republic is estimated at 4,320,000, exclusive of about 30,000 uncivilized Indians. The larger cities, with estimated populations, are: Bogotá, 150,000; Medellín, 60,000; Barranquilla, 42,000; Bucaramanga, 30,000; Cartagena, 27,000; Cúcuta, 10,000. According to the above-mentioned decree of April 16, one of the departments was Panama, included apparently to avoid even a tacit recognition of independence. In this connection it should be noted that late in December, 1910, Panama made unsuccessful overtures for the re-establishment of relations. Primary instruction is free, but not compulsory. There are several normal schools and a few institutions for professional education. Public schools number about 2990, with about 237,000 pupils. The state religion is Roman Catholicism.

**INDUSTRIES.** Agriculture and mining are the chief industries. The products include bananas and other tropical fruits, coffee, cacao, sugarcane, cotton, corn, rubber, and wheat, barley, and other crops of the temperate zone. The annual coffee yield is about 600,000 bags. Banana culture is extending. The estimated number of cattle is about 4,000,000. The mineral wealth of the country, especially in Antioquia, is very great. The annual output of gold and silver is valued at \$4,000,000. There are rich deposits of copper, lead, zinc, mercury, iron, platinum, salt, and other minerals. The famous emerald mines of Muzo and Cosquez (75 and 78 miles respectively north of Bogotá), which are owned by the government, were leased in 1909 to an English syndicate, which engaged to sell at least \$1,250,000 worth of emeralds a year. In 1907 the government receipts from these mines were \$371,301.

Manufacturing industries are comparatively unimportant, but in some of the larger towns there are establishments for the manufacture of various articles of common use, as cotton textiles, shoes, hosiery, matches, sugar, liquors, flour, and brick.

**COMMERCE.** The values of imports and exports have been as follows, in United States gold:

	1907	1908	1909
Imports .....	\$12,088,563	\$13,513,892	\$10,561,047
Exports .....	13,791,442	14,998,744	15,513,346

At the two leading ports, imports and exports respectively were in 1909: Baranquilla, \$5,744,570 and \$5,689,017; Cartagena, \$2,264,470 and \$4,548,896. The principal imports are flour, lard, petroleum, and cotton goods from the United States; sugar, rice, and potatoes from Germany; and cotton goods from Great Britain. The leading exports are gold, coffee, cattle, rubber, tobacco, ivory, nuts, and bananas. Of the coffee exports about 67 per cent. goes to the United States, and most of the tobacco to Germany.

**COMMUNICATIONS.** At the end of 1909 there were in operation 821 kilometres (511 miles) of railway, comprising mostly short lines engaged in local traffic. Railway extension was in progress during 1910. During the last four or five years there has been considerable development, not only in railways, but in wagon roads and river navigation. Telegraph offices, 524, with 10,676 miles of line. Post-offices, about 500.

**FINANCE.** For several years the government has experienced serious financial difficulties and has counted itself successful when able to maintain the value of the paper currency as compared with gold at a ratio of 100 to one. Trade and industry show unsatisfactory development. The country has not yet recovered from the civil war of 1900-2, and internal troubles are still of frequent occurrence. Estimated revenue and expenditure for 1909 are reported to balance at \$16,600,000 and for 1910 at \$10,831,500. The largest source of revenue is customs (est. \$7,060,000 in 1910). The larger estimated expenditures for 1910: public works, \$2,712,044; service of the debt, \$2,247,117; department of the interior, \$2,686,278; war, \$2,456,438. The external debt amounts to about \$13,500,000; to this sum must be added upwards of \$526,500 arrears of interest and railway bonds for about \$935,600. Internal debt (1907), 5,476,888 dollars silver; floating debt (1908), \$3,063,012. These debts are exclusive of outstanding paper currency, amounting probably to some 700,000,000 pesos. The gold dollar, or peso, is equivalent to the United States dollar; the silver peso fluctuates with the price of silver; and the paper peso is legally current at one cent, but its actual purchasing power fluctuates considerably.

**ARMY.** Military service by law is compulsory and every able-bodied male is liable for service in the National Army. In practice the law is not enforced and the standing army is maintained at less than 10,000, the strength being determined annually by Congress. This standing army theoretically was capable of being increased to a war effective strength of 60,000, but such an army would be but partially trained.

**GOVERNMENT.** The executive authority is vested in a president, who is elected by the Congress for a (constitutional) term of four years, and is assisted by a cabinet of six ministers. The Congress consists of the Senate and the House of Representatives, members of the former being chosen by indirect, and of the latter by direct vote. In 1904 Gen. Rafael Reyes was elected President, and in the following year, by Congressional resolution, his term of office was extended to ten years, dating from Jan. 1,

1905. In the summer of 1909 he resigned, and on August 3, Gen. Ramón González Valencia was designated by the Congress to serve for one year. On July 15, 1910, the Congress elected Carlos E. Restrepo, who was inaugurated on August 7 for a four-year term.

**HISTORY.** There were evidences of anti-American feeling in Bogotá, the capital, in the spring, when a railway owned by an American citizen under a concession which was not approved by the people, had to discontinue its service on account of the attacks of the mob, and there were further riotous movements apparently actuated by the same motive in March. An apology was tendered to the United States Minister. The government imposed a tax on American flour brought from the coast to the interior. The Minister of Finance opposed this measure and resigned in protest. Elections for a constitutional assembly were held on April 3. Señor Carlos E. Restrepo was elected president on July 6, succeeding Gen. González Valencia. The centennial anniversary of independence was celebrated at Bogotá on July 20, 1910. See **LEPROSY**.

**COLONIAL DAMES.** See **PATRIOTIC SOCIETIES**.

**COLONNE, JULES JUDE**, also called **EDOUARD**. A French musical conductor and violinist, died in April, 1910. He was born at Bordeaux in 1838 and studied at the Conservatory in Paris. After taking the prize in Harmony and the first prize in violin at the Conservatory, he became first violin at the Opera House, but resigned that position in order to establish a series of Sunday concerts at the Odéon, known later as the Association Artistique. He first played in operas the works of Tschaikowsky, Grieg, Wagner and Raff. He was very popular as a "guest-conductor." In 1904 he visited the United States.

**COLONUS.** See **ARCHÆOLOGY**.

**COLOR.** See **CHEMISTRY**, *Color of Dyestuffs*.

**COLORADO.** One of the States in the Mountain Division of the United States. It has an area of 103,658 sq. miles of land surface, and 290 miles of water surface. Its capital is Denver.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 799,024 as compared with 539,700 in 1900 and 413,249 in 1890. In the decade 1900 to 1910 there was an increase of 48 per cent. The State ranks 32nd in point of population, the same relative rank which it held in 1900. The population of the larger towns and cities will be found in the tables in the article, **UNITED STATES CENSUS**.

**MINERAL PRODUCTION.** Mining is the principal industry of the State. Up to 1910 it was the leading State in the production of gold. In that year, however, it was outstripped by California. The value of the gold production in Colorado in 1910, according to the preliminary estimates of the United States Geological Survey, was \$20,408,641, as compared with a value of \$21,846,600 in 1909. The State ranks fourth in the production of silver, being surpassed only by Montana, Utah and Nevada. There were produced in 1910 8,747,777 fine ounces of silver as compared with 8,846,300 fine ounces in 1909.

The State is an important producer of coal. The product in 1910 was 10,716,936 short tons, having a spot value of \$14,296,012. Since 1899 Colorado has occupied first place among the

coal producing States west of the Mississippi and ranks eighth among all the States. The State possesses large supplies of good coking coal and it is assuming considerable importance in the manufacture of iron and steel. The output of coal of 1909 exceeded that of 1908 by 1,081,963 short tons and was within 75,000 tons of the maximum record, that of 1907. The average price per ton, however, decreased from \$1.41 in 1908 to \$1.33 in 1909. There were but two strikes, neither of which was important, during the year. In 1909 there were 95 fatal accidents in the coal mines of the State. The reports of the United States Geological Survey indicate an increase in the production in 1910 over that of 1909 of about 20 per cent. so that the output was approximately 12,000,000 tons. There was an unusually large demand for Colorado coal in 1910 for the use of the railroads running between Colorado and the Mississippi River. There was also a better domestic demand during the summer months.

The State produces a considerable amount of lead. The product in 1909 was 29,326 tons as compared with 28,728 tons in 1908. Large quantities of copper are produced. In 1909 the output was 11,485,631 lbs., which was a decrease from the product of 1908, which was 13,943,878 lbs. The State ranks third in the production of spelter. The product in 1909 was 20,121 tons as compared with 24,885 tons in 1908. Other mineral products are clay products, stone and mineral waters.

According to the estimates of the United States Geological Survey, the production of precious metals in the State in 1910 showed a decrease. The silver production, however, increased slightly in value, owing to an increased price per fine ounce in 1910. There was considerable increase in the lead output, but a decrease in the yield of copper. Less gold and silver were recovered both from bullion and from smelting ore.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909 and 1910 are shown in the following table:

COLORADO CROP TABLE

	Acreage	Prod. bu.	Value.
Corn 1910.....	143,000	2,846,000	\$1,708,000
1909.....	135,000	3,267,000	2,287,000
Winter wheat 1910..	104,000	2,392,000	1,961,000
1909..	90,000	2,673,000	2,486,000
Spring wheat, 1910 ..	289,000	6,329,000	5,190,000
1909..	275,000	8,085,000	7,519,000
Oats, 1910.....	202,000	7,898,000	3,633,000
1909.....	196,000	7,448,000	3,947,000
Barley, 1910.....	27,000	864,000	518,000
1909.....	6,000	936,000	618,000
Rye, 1910.....	5,000	70,000	47,000
1909.....	1,000	88,000	64,000
Potatoes, 1910.....	65,000	6,500,000	3,575,000
1909.....	65,000	10,400,000	5,928,000
Hay, 1910.....	700,000	1,400,000a	15,120,000
1909.....	704,000	1,760,000a	17,600,000

(a) Tons.

The crops in general showed a decrease in 1910 from the production of 1909. This is true in the case of corn, winter wheat, spring wheat, barley, rye, potatoes and hay, all of which show a falling off. The corn crop was nearly 1,000,000 bushels less than in 1909 and the crop of spring wheat was nearly 2,000,000 bushels less in 1910. Potatoes showed a decrease of nearly 4,000,000 bushels. The State ranks first in the production of beet sugar.

**CHARITIES AND CORRECTIONS.** The charitable and correctional institutions under the control of the State, with their disbursements during the biennial period of 1909-10 were the following: Dependent Children's Home, \$1000; State Insane Asylum, \$180,926; State Reformatory, \$4371; Soldiers' and Sailors' Home, \$39,180. No legislation relating to charities and corrections was enacted during 1910. In 1909 a bill was passed authorizing the establishment and direction of a home and training school for mental defectives. The State Land Board donated 310 acres of land for this institution and an administration building is now in course of erection. A bill for the erection of four cottages and other necessary buildings will be presented to the legislature of 1911.

**POLITICS AND GOVERNMENT.** There was no regular session of the legislature in 1910 as the sessions are biennial and the last was held in 1909. There was, however, a special session called. Both houses passed a primary bill, provided for the appointment instead of the election of railroad commissioners, and submitted an amendment to make the initiative and referendum a part of the constitution. This amendment was subsequently adopted by a large majority. The next general assembly will begin January 4, 1911.

**CONVENTIONS AND ELECTIONS.** The Republican State convention was held in Colorado Springs and nominated State Senator John B. Stephen for governor. The convention in its platform warmly commended President Taft for his course and achievements and declared itself proud of the record of his administration. Although Mr. Roosevelt received during a visit to the House an enthusiastic welcome his name was not prominently mentioned in the State convention. Senator Guggenheim was praised for his work in Congress and his liberal gifts to State institutions. The Democratic convention was held in Denver on September 14, and Governor John F. Shafroth was renominated for governor over Mr. B. L. Jefferson, Register of the State Land Board. Congressman at large, Edward T. Taylor and Chief Justice Robert W. Steele were also renominated. On October 12, Justice Steele died, and the Democrats nominated Julius F. Gunter, a former member of the Supreme Court, in his place. In the election on November 8, the Democrats were in the main successful. They elected the three representatives in Congress, and all their State ticket with the following exceptions: The Republicans elected James E. Garrigues Supreme Judge, Mrs. Helen M. Wilson Superintendent of Public Instruction, Benjamin Griffith, Attorney-General, W. J. King and Miss Anna Wolcott regents of the State university and S. S. Kendall Railroad Commissioner. Miss Wolcott is a sister of Former United States Senator Edward O. Wolcott.

Four women were elected to the legislature. Upon several other occasions, however, women sat in that body.

**CONSTITUTIONAL AMENDMENTS.** In addition to the initiative and referendum amendment already mentioned, the people adopted at the general election amendments to the State constitution providing for the payment of legislators by salaries instead of per diem, for the establishment of a land board to be appointed by the governor instead of composed as heretofore by other officers acting as members of the board ex officio, and granting the State university, which

is at Boulder, permission to conduct part of its medical course in the city of Denver.

**OTHER EVENTS.** The year was notable for several bad coal mine disasters. On January 31, an explosion in the mine of the Colorado Fuel and Iron Company at Primero, near Trinidad, entombed one hundred men. This was the second disaster in this mine. A former one took place on January 23, 1907, in which twenty-six lives were lost. On October 9, a gas explosion wrecked the coal mine of the Colorado Fuel and Iron Company, at Starkville. Over sixty men were entombed. On election day fifty-nine miners were killed by an explosion in the Victor American coal mine at Delagua. An explosion followed by a fire killed ten men in the mine of the Leyden Coal Company, on December 14, about twelve miles from Denver.

**STATE OFFICERS.** Governor, John H. Shafroth; Lieutenant-Governor, Stephen R. Fitzgarrald; Secretary of State, James B. Pearce; Treasurer, Ready Kenahan; Auditor, M. A. Leddy; Attorney-General, Benj. Griffith; Superintendent of Public Instruction, Helen M. Wixon; Commissioner of Insurance, William L. Clayton—all Democrats except Griffith, Wixon and Clayton.

**JUDICIARY.** Supreme Court: Chief Justice, John Campbell, Rep.; Justices, S. H. White, Dem.; W. A. Hill, Dem.; M. S. Bailey, Dem.; Wm. H. Gabbert, Rep.; G. W. Musser, Dem.; Clerk, James R. Killian, Dem.

STATE LEGISLATURE, 1911.

	Senate.	House.	Joint Ballot.
Democrats .....	26	40	66
Republicans .....	9	25	34
Democratic majority.	17	15	32

**COLORADO FUEL AND IRON CO.** See COLORADO.

**COLORADO LEGISLATURE.** See COLORADO.

**COLORADO SPRINGS.** See MUNICIPAL GOVERNMENT AND INITIATIVE AND REFERENDUM.

**COLORED METHODISTS.** Included under this title are the African Methodist Episcopal Church, the African Methodist Episcopal Zion Church, the Colored Protestant Episcopal Church, the Union American Methodist Episcopal Church, the African Union Methodist Protestant Church and the Zion Union Apostolic Church. Of these the largest body is the African Methodist Episcopal Church, which had in 1906, the latest year for which statistics are available, 858,323 communicants, 6920 churches and 6170 ministers. The African Methodist Episcopal Zion Church had in 1908 583,106 communicants, 3280 churches and 3986 ministers. The Colored Methodist Episcopal Church had 233,911 communicants, 2809 churches and 2863 ministers. The remaining denominations have a comparatively small number of communicants. All are strongest in the Southern States.

**COLOSSUS, THE.** See BATTLESHIPS.

**COLOR VARIATIONS.** See BIOLOGY.

**COLUMBIA, BRITISH.** See BRITISH COLUMBIA.

**COLUMBIA, DISTRICT OF.** See under UNITED STATES.

**COLUMBIA UNIVERSITY.** An institution of higher learning in New York City,

founded in 1754. The attendance in 1910-11 was 7429 (including 1965 summer session students, but excluding 1836 students in extension teaching.) These students were distributed as follows: 732 in Columbia College; 524 in Barnard College; 1177 non-professional graduate students and 3259 professional students in education, applied science, medicine, law, pharmacy and fine arts. In 1909-10 all parts of the United States, and thirty foreign countries, were represented in the student body, the graduate students representing 340 other colleges and universities. During 1909-10 Columbia received money gifts of \$2,045,335.40, Teachers College received \$294,376.99, and Barnard College \$15,766.91, a total of \$2,355,479.30. Between 1901 and 1910 the several corporations of the University received a total of \$13,618,912.95 in money gifts. The total assets in 1910 were \$14,351,843.86 in educational equipment, and \$28,519,930.42 in endowment. The library contained 450,000 bound volumes. The total income for 1909-10 (including Barnard College, Teachers College, and the College of Pharmacy) was \$2,190,982.95. The estimated expenditure for 1910-11 was \$2,754,375. In 1910-11 the teaching and administrative staff of the University numbered 761. At the commencement of 1910, 1323 degrees and diplomas were granted.

For the past decade the University has been able to do comparatively little in the development of new fields. The gifts made in that period, generous though they have been, have of necessity been used largely in the development of the Morningside site,—what was left barely serving the institution to keep pace with its increasing registration.

Courses are being formulated in Preventive Medicine, Forest Engineering and Agricultural Engineering. The gift of Mr. Blodgett of a farm near Fishkill will greatly aid the work in agriculture. Mr. George Crocker's bequest for research in cancer will open up a new field of investigation at the Medical School. A most advantageous agreement with the Presbyterian Hospital has just been consummated, which will greatly enhance the work of the Medical School and do much to further medical education and research in New York City. The work of the Department of Extension Teaching has been increased and standardized. Musical chorus work is being especially featured. The work of the Committee on Undergraduate Admissions, created in 1909, is now bearing fruit. The close personal handling of each individual case and the system of reports from secondary schools has given the candidate for admission the benefit of his preparatory school record. The opportunities open to students in all the professional courses are being extended as rapidly as possible by bringing them into direct contact with experts—alumni and others—in the professional field which they purpose to enter. The president is Nicholas Murray Butler.

**COLUMBIUM.** See ATOMIC WEIGHTS.

**COLUMBUS, O.** See GABBAGE AND REFUSE DISPOSAL.

**COLUMBUS STREET CAR STRIKE.** See OHIO AND STRIKES.

**COLVILL, Mrs. H. H.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**COMBINATIONS.** See TRUSTS.

**COMETS.** See ASTRONOMY.

**COMFORT, GEORGE FISK.** An American educator, author, and art director, died, May 5

1910. He was born in Berkshire, N. Y., in 1833, and graduated from Wesleyan University in 1857. From 1860 to 1865 he studied art, philosophy and history in Europe. From the latter year until 1868 he was professor of æsthetics and modern languages in Allegheny College. From 1868 to 1872 he was lecturer in Christian art and archæology at the Drew Theological Seminary. In 1872 he became professor of modern languages and æsthetics at Syracuse University, serving in that position until 1893. During this time he organized the College of Fine Arts at the University and was made its dean. In 1896 he organized the Syracuse Museum of Fine Arts, of which he was director from that time until his death. He was one of the founders of the Metropolitan Museum of Art, New York, and was corresponding member of many learned institutions and societies in Europe and the United States. He was the author of *Art Museums in America*, *Modern Languages in Education*, a series of German textbooks and many contributions on art and history to periodicals and encyclopædias. From 1872 to 1893 he was art editor of the *Northern Christian Advocate*.

**COMMERCE.** The trade of the United States with foreign countries is treated in the article UNITED STATES, section *Imports and Exports*, and internal trade will be found in the article under *Inland Commerce*.

The trade of foreign countries will be found in the articles on those countries. For further details see the articles on the industries and FINANCIAL REVIEW.

**COMMERCE COMMISSION, INTERSTATE.** See RAILWAYS.

**COMMERCE COURT.** See RAILWAYS and UNITED STATES.

**COMMERCIAL EDUCATION.** See EDUCATION IN THE UNITED STATES.

**COMMISSION CITIES.** See MUNICIPAL GOVERNMENT.

**COMMISSION FORM OF GOVERNMENT.** See MUNICIPAL GOVERNMENT, and INITIATIVE AND REFERENDUM.

**COMMISSIONS.** See RAILWAYS.

**COMMISSION SYSTEM.** See MUNICIPAL GOVERNMENT.

**COMMON SCHOOLS.** See EDUCATION.

**COMMUNICATIONS.** See paragraphs on the subject in articles on countries and on States of the United States.

**COMMUTATION RATES.** See RAILWAYS.

**COMORO ISLANDS.** See MAYOTTE.

**COMPASS.** See TERRESTRIAL MAGNETISM.

**COMPENSATION ACT.** See EMPLOYERS' LIABILITY.

**COMPULSORY ARBITRATION.** See ARBITRATION, INTERNATIONAL.

**COMPULSORY VOTING.** Compulsory voting is not an untried experiment, but a working system, in at least two countries of Europe.

In the first of these, Austria, it is not of universal application. It is applied in the election of members of the Reichsrath, or national parliament, in six different provinces, including Lower Austria and Upper Austria. Every voter is required to present his electoral ticket, the penalty for failure being a fine of from one to fifty kronen. In Belgium the system has been in successful operation for more than sixteen years and it has been proved that it is not necessary to have drastic penalties to enforce compliance with the law. In brief, the penal pro-

visions consist of publicity—likely to be the most effective deterrent—a reprimand or fine for the first offense, a little larger fine for the second offense, for the third the same fine and a more severe dose of publicity, and for the fourth deprivation of the right to vote for a period of ten years. In no event is imprisonment imposed. How has the plan worked? An authority says: "It was put in operation in 1893, and previous to that time approximately 16 per cent. of the electors failed to vote. Under the compulsory law the percentage of non-voters fell to 4 or 5 per cent. In 1898, out of 1,058,165 electors called to the polls, 5551 failed to attend without giving previous notice of the reason and were summoned into court; of that relatively small number 2611 were excused by the magistrates on such grounds as illness, age, or absence, and 2930 were fined.

In 1907 a bill was proposed in Wisconsin which attempted to secure compulsory voting by imposing a poll tax of \$10, of which \$9 should be remitted if the taxpayer appeared at the polls to vote. In New York county, under the provisions of certain sections of article 17 of the consolidated Judiciary Law, there is something of an attempt to provide for the same end. The Commissioner of Jurors must make up two lists of those qualified to serve on trial juries, one called the voters' list, containing the names of those who have duly registered at the last preceding election, and the other, the non-voters' list, containing the names of those who have not so registered. In the drawings for trial juries the non-voters' list as so made up must be first used before the voters' list is used. As a practical result, however, this provision is not at all effectual, because it is almost impossible to obtain any considerable list of non-registered persons for the non-voters' list, although the city directory and similar sources are used.

**COMSTOCK, CYRUS BALLOU.** An American army officer and educator, died May 29, 1910. He was born at West Wrentham, Mass., in 1831 and graduated from the United States Military Academy in 1855. He became second lieutenant in the corps of engineers and until 1859 was engaged in the construction of Fort Taylor, Fla., and Fort Carroll, Md. After this he became assistant professor of natural and experimental philosophy at the United States Military Academy. He served in the defenses of Washington during the Civil War, becoming in August, 1861, assistant to the chief of engineers of the Army of the Potomac. He remained with this army during the campaign of 1862 and the Maryland campaign and was made chief of engineers in November, 1862. At the siege of Vicksburg he was chief engineer of the Army of the Tennessee and was later assistant inspector of the military division of the Mississippi. From March, 1864, until the close of the war he was senior aide-de-camp to General Grant and from the close of the war to 1870 he served as aide to the general-in-chief at Washington. For several years he was a member and president of the Mississippi River Commission and was a member also of the Permanent Board of Engineers for Fortifications. From 1870 until his retirement in 1895 he was occupied as superintendent of the Geodetic Survey of the northern and northwestern lakes and in other important service, including improvements of the mouth of the Mississippi. He was advanced to the rank of brigadier-general, retired, in 1904.

**CONANT, CHARLES A.** See **CENTRAL BANK. CONCRETS.** See **MUSC.**

**CONCRETE.** The various uses to which concrete, especially when reinforced by metal rods or framing, is put continued to increase. Long ago its value as a structural material was realized and in these columns the record for 1910 can only mention some of the most interesting of the novel or unusual applications.

**REINFORCED CONCRETE SNOW-SHED.** In the Cascade Mountains the Great Northern Railway, like other transcontinental lines, is obliged to build and maintain snow-sheds in order to keep its road open to traffic with any degree of certainty during the winter and spring months. In addition to the danger of the destruction of wooden sheds by forest and other fires, there is also the menace of their annihilation by avalanches from the steep mountain sides. In order to prevent a repetition of this sort of catastrophe, which occurred about a year ago and overwhelmed two trains, causing great loss of life, the Great Northern was building at Wellington, Wash., a reinforced concrete snow-shed, indestructible by fire, located to avoid somewhat the direct slide from above, and having the roof designed to form an incline that will allow an avalanche to slide easily over it without doing serious damage.

The new shed involved the re-location of the line for a distance of about 1000 feet, setting it farther into the mountainside. The side next the mountain was strengthened by carrying the base into the bank so that the section of the inner wall of the shed is a right angle triangle having a ratio of base to altitude of about 2 to 3. The structure accommodates two tracks and is 3900 feet long, having a roof of heavily reinforced concrete 10 inches thick, resting on rafters of the same material 2 feet 5 inches deep. These in turn are supported by columns 20 x 24 inches in section, set 10 feet centre to centre along the track, and giving 21 feet clear head-room at the outer edge of the road-bed. A second row of columns between the two tracks gives an additional, intermediate support to the roof.

**REINFORCED CONCRETE OIL RESERVOIR.** In the oil district of California near San Luis Obispo, two reservoirs were built during the year to receive and store oil, each of which holds one million (1,000,000) gallons. Oil wells were sunk and the industry developed in this region faster than the facilities to take care of it, and in some cases oil was kept in pools in the ground until a plant could be established. These reservoirs were built of reinforced concrete, 601 feet inside diameter and 20 feet 4½ inches high, forming circular tanks, conveniently near together. The walls are 3 feet thick at the base and 6 inches at the top. The reinforcement was by ½-inch round steel rods. The dirt and sand removed to make the shallow excavation level on the floor was dumped to form a circular embankment outside the reservoir wall, but separated from it by an annular space about 20 feet, thus forming a sort of fire lane around it. The floor of the reservoir is 2½ inches thick, formed on galvanized steel wire netting.

**MOVABLE DAMS, N. Y. STATE BARGE CANAL.** That part of the so-called Barge Canal lying between Rome, N. Y., and a point a few miles west of the Hudson River, will make use of the Mohawk River. This latter stream, however, is subject to variation of level following droughts and floods, and for that reason, a sys-

tem of fixed dams or dikes to store water for use during dry seasons might cause serious and extensive damage by backing up water in times of flood, particularly when ice is moving out suddenly or in large quantity. To meet these conditions, a number of movable or adjustable dams were started, and two of them were to be in use by the spring of 1911. They are aprons suspended from bridges built across the canal, hung by chains from the bridge structure and arranged so as to be raised or lowered to suit the state of the water in the river. The bridges are of various span lengths from 180 feet to 216 feet, and of the curved upperchord Pratt truss type. At each post of the truss are heavy floor beams from which are hung the frameworks that carry the dam gates. The gates are made in sections, each being about 30 feet long and 11 feet high, made of three buckled plates, one above the other, and heavily braced and riveted to the framework. In order to be fairly watertight at the bottom, a sill or floor is put down on the river bed, extending beyond the bridge, made of concrete in which cast iron blocks are imbedded to serve as stops for the gates; and the floor is on a slight incline so as to give the bottom edge of the gate a good bearing. The concrete floor rests on a bed of riprap. Eight of these movable dams were in course of construction between Schenectady and Little Falls at the close of the year. See also **DAMS.**

**SIPHON LOCK, N. Y. STATE BARGE CANAL.** The locks on the Barge Canal are of considerable size, 300 feet to 310 feet long, 45 feet wide, and will have 12 feet depth of water at the lowest level. They are built of reinforced concrete and have steel gates operated by electric motors controlled from a switchboard in the lock-tender's house. At Oswego, N. Y., there are two locks at the entrance of the canal to Lake Ontario that have just been built embodying an unusual method of emptying and filling; namely, the use of a siphon. Siphon locks have been built on the Teltow and other canals in Germany, but have never been used in the United States. The Oswego locks are built with a siphon at each end, communicating with the upper and lower pool respectively, and having in connection with each siphon a chamber or tank called a vacuum tank for the purpose of putting the siphon in operation or for stopping the flow of water by admitting air to the top of the siphon. In each wall of the lock there is a longitudinal culvert that terminates in the siphon, and having side openings communicating with the water in the pools 3 feet or 4 feet below low water level in them. This culvert is 5 feet high and 7 feet wide. The siphon is made smaller at its highest point than at the inlet or outlet; and is of rectangular section at the top, 5 feet x 6 feet. A 12-inch pipe, in which a gate valve is placed, conducts water from the upper pool to the vacuum tank and fills it. A 20-inch pipe, with a similar valve, serves to empty the tank.

In operation, the vacuum tank is filled with water and the inlet valve closed. Then the outlet valve is opened, the water runs out and its place is taken by air drawn through a small pipe leading from the upper part of the siphon to the tank. This action, by removing air from the siphon, starts the flow of water through it, and incidentally refills the vacuum tank. There is a difference of level of 10 feet between the levels of water in the upper and lower pools,

with a leeway of 1 foot. The arrangement is easy to control, simple to operate, and should cost but little to maintain. See also BRIDGES and CANALS.

**CONCRETE BARGES.** An experimental barge constructed of reinforced concrete was built and put in use on the Panama Canal. Its behavior proved so satisfactory that three more were to be built by the Canal Commission. A barge for this particular service must be capable of carrying considerable weight, all on deck, with a light draft of water. The vessel is of the common flat-bottomed, rectangular type with a rake at both ends to enable loading to be accomplished from sloping banks. It is 64 feet long and 24 feet beam, by 5 feet deep inside. The hull is divided into three longitudinal compartments 8 feet wide each by bulkheads running from end to end. There are also transverse frames 10 feet apart that tie together and stiffen the gunwales, bottom and bulkheads. Heavy towing bits are built into the structure in such a way as to distribute the strain throughout. The principal reinforcement is of  $\frac{1}{2}$ -inch square corrugated steel bars spaced 9 inches apart longitudinally, and 12 inches crosswise. The bottom and the gunwales are formed on a layer of No 12 gauge steel wire cloth of  $\frac{1}{2}$ -inch mesh attached to  $\frac{1}{2}$ -inch reinforcing bars. The sides and bottom are  $2\frac{1}{2}$  inches thick and the deck 4 inches. In the latter are six manholes 21 inches in diameter. The weight is estimated at 165 tons, and the unloaded draft is from 2 feet 9 inches to 3 feet of water.

For use of reinforced concrete in boiler settings see BOILERS.

**CONCRETE BARGES.** See CONCRETE.

**CONCRETE MOVABLE DAMS.** See CONCRETE.

**CONCRETE OIL RESERVOIR.** See CONCRETE.

**CONCRETE, REINFORCED.** See BRIDGES.

**CONCRETE SIPHON LOCKS.** See CONCRETE.

**CONCRETE SNOW-SHEDS.** See CONCRETE.

**CONDENSED MILK.** See DAIRYING.

**CONDER, CLAUDE REIGNIER.** An English army officer, explorer and archæologist, died February 16, 1910. He was born in England in 1848, and was educated at University College, London. From 1872 to 1878 and from 1881 to 1882 he was in command of the survey of Palestine. In 1882 he surveyed with the English army in Egypt and in 1884-85 took part in the campaigns in Bechuanaland. From 1887 to 1894 he was British Commissioner of the Transvaal Border and was on service with the Headquarters Ordinance Survey. In 1895 he was under the Irish office in charge of relief of distress and in 1905 he was engaged in ordinance survey in Ireland. He rose to the rank of colonel. Colonel Conder was long associated with the Palestine Exploration Fund, and he is best known through his surveys and archæological writings relating to Palestine. Among his published works dealing with Palestine are the following: *Tent Work in Palestine* (1878); *Judas Maccabæus* (1879); *Heth and Moab* (1883); *Memoirs of the Survey of Western Palestine* (1883); *Memoirs of the Survey of Eastern Palestine* (1890); *Altaic Hieroglyphs* (1887); *Primer of Bible Geography* (1884); *Handbook of the Bible* (1879); *Palestine* (1891); *Tel-Amarna Tablets* (1893); *The Bible*

*and the East* (1896); *The Latin Kingdom of Jerusalem* (1897); *The Hittites and their Language* (1898); *The Hebrew Tragedy* (1900); *The First Bible* (1903); *The City of Jerusalem* (1909).

**CONFEDERACY, UNITED DAUGHTERS OF THE.** See PATRIOTIC SOCIETIES.

**CONFEDERATE VETERANS.** See PATRIOTIC SOCIETIES.

**CONFERENCE OF GOVERNORS.** See CONSERVATION and HOUSE OF GOVERNORS.

**CONFERENCE ON CONSERVATION.** See CONSERVATION.

**CONFERENCE ON UNIFORM LEGISLATION.** See HOUSE OF GOVERNORS.

**CONFERENCE ON WOMEN AND CHILDREN, SOUTHERN.** See CHILD LABOR.

**CONGER, Senator BENN.** See NEW YORK.

**CONGESTION OF POPULATION.** See POPULATION, CONGESTION OF.

**CONGO, BELGIAN.** A Belgian colony (since 1908) in central Africa; formerly the Congo Free State, founded in 1882 by Leopold II and till 1908 under his direct sovereignty. Capital, Boma.

**AREA, POPULATION, ETC.** Estimated area, 920,000 square miles. Various estimates for the population are given: official, 20,000,000; Sir H. Johnston, 15,500,000; still another, 9,000,000. European population, January, 1909, 2938. Population of Boma, 3300. Banana, at the mouth of the Congo, is the chief port. The population, mainly of Bantu origin, practice fetichism. There are 138 mission stations, with which the government coöperates; and children are taught at the four agricultural colonies.

**PRODUCTION.** Reform is the word of the hour in the Congo. The native is to have the products of the soil derived by his labor; taxation is to be in money; the Comité Spécial of Katanga is to be abolished. The country is to be opened to trade in three great steps: 1st, July 1, 1910, the Lower Congo, Stanley Pool, Ubangi, Bangali, Kwango, Kasai, Katanga, the Eastern Province (southern part), Aruwimi, and the river banks to Stanleyville; 2d, July 1, 1911, the Crown lands; 3d, July 1, 1912, the Welle district. The exploitation of Crown lands by the state will be totally abolished by 1912, by order of the Colonial Council; and other reforms tending to amelioration of existing conditions have been voted by that body. Rubber is the leading commercial product. Coffee and cacao are successfully grown, and ivory, palm kernels, palm oil, tobacco, and white copal are important products.

The mineral wealth of Katanga has been in large part the object of the recent extensive railroad building. Development work has begun and native labor is being employed. The copper deposits, in width between thirty and sixty miles, extend some 200 miles. Tin, gold, platinum, iron, palladium, and coal are known to exist.

**COMMERCE.** The trade, which is largely with Belgium, is given below for three years in francs:

	1907	1908	1909
Imports .....	25,182,000	32,561,300	28,482,000
Exports .....	58,895,000	57,383,100	78,014,000

The principal articles of export in the special trade for 1909 were rubber, 42,569,000 francs; ivory, 6,583,000; gold, 2,280,000; palm kernels, 1,835,000; palm oil, 984,000; cacao, 969,000;

white copal, 868,000. The total special trade, with countries of origin and destination, is given as follows (1909): Belgium, imports 19,734,000 francs; exports 39,429,000; Great Britain, 2,419 and 920,000; France, 1,059,000 and 8000; Germany, 1,023,000 and 66,000; Portuguese possessions, 666,000 and 2,279,000; Netherlands, 574,000 and 361,000; Portugal, 237,000 and 110,000; total imports (special trade), 22,127,000 francs; exports, 56,167,000. Vessels entered (1908) 224, of 582,267 tons; cleared, 227, of 587,865.

**COMMUNICATIONS.** The goal of the past four years of railway construction has been the rich mineral beds of Katanga. With the completion of the Katanga branch of the Cape-to-Cairo Railway the southern edge of this district is reached. The road from Benguela eastward will attain the same point. The roadbed round the last unnavigable reach of the upper Congo is completed, and when the track laying is finished the transportation route by rail and water from the river mouth to Kalengwe Falls (2500 miles) will be continuous. A branch now under way from Kalengwe Falls south through Katanga will effectively complete the opening up of that district. Total telegraph lines, 1083 miles. Post-offices, 30.

**FINANCE.** Revenue for 1907, 40,895,296 francs (ordinary, 35,762,339; extraordinary, 5,132,957); expenditure, 40,191,796 (ordinary, 35,747,531; extraordinary, 4,444,265). Revised revenue and expenditure for 1908, 35,378,000 and 39,245,963 francs respectively; for 1909, 36,094,036 and 44,517,336. Estimated for 1910: revenue, 39,745,305 francs (taxes in kind, 14,127,500; customs, 7,056,555; transports, etc., 3,282,000; direct taxes, 2,671,000); expenditure (including extraordinary, 33,516,775), 73,887,589 (ordinary, 40,370,814; of which Interior, 18,616,090; Finance, agriculture, etc., 10,436,870; expenditure in Europe, 7,753,894; Justice, etc., 2,790,630). Total public debt, 214,909,700 francs.

**ARMY.** The native armed force in 1910 consisted of 15,736 soldiers commanded by European officers. They were divided into 23 independent companies of infantry and recruitment was by conscription. There are maintained in addition a skeleton organization and a reserve corps. There are four camps of instruction.

**GOVERNMENT.** A responsible minister of the colonies is appointed by the King. He is president of the Colonial Council and a member of the Council of Ministers. A governor-general (1910, Baron Wahis) resides in the colony and is aided by several vice-governors-general. There are fourteen administrative districts, each under a commissioner. On May 14, 1910, an agreement was signed by representatives of Belgium, Great Britain and Germany, rectifying certain boundaries as follows: Germany to retain all of Runga; Belgium to have the west shore of Lake Kivu as a frontier; the island of Kwiswi in Lake Kivu to belong to Germany; Mount Ruwenzori to be divided between Belgium and Great Britain, the frontier crossing the crest of the range.

**HISTORY.** By the treaty of October 18, 1908, the Congo Free State was annexed to Belgium and in the same year the Belgian Parliament provided for its administration by the passage of the Colonial act. Promises of reform were made and on November 28, 1909, the Colonial Minister set forth the government's plans (see

paragraph PRODUCTION). They were embodied in a decree on March 22, 1910. Complaints were made, however, by the Congo reformers in England and the United States that the abuses continued and that the natives were no better off under the new régime. Sir Edward Grey declared in Parliament on March 10, 1910, his regret at the delay in carrying out the government's plans and at the fact that the abolition of forced labor applied only to the state lands. The fact that the personnel of the former government was so largely retained in the administration also caused distrust. Hence the British government had decided to withhold its acknowledgment of annexation till the country was opened to foreign trade and the forced labor system abolished. The young King Albert on his accession referred to the necessity for just administration of the Congo, and later, at the opening of the Colonial Exhibition at the end of April, he declared that the Colonial officials would introduce wise reforms and give the colony an administration worthy of Belgium. He condemned excessive exploitation of the country and favored a policy of colonization that should be sanctioned by Christian morals. The conditions in the Congo, however, were far from satisfactory to the reformers in England and the United States. In the former country a Parliamentary memorial, signed by 158 members of Parliament, was presented to the Prime Minister on May 6. This declared that as there might be some danger on the occasion of the King of Belgium's visit to England that the public would lose sight of the reasons for refusing to recognize the transfer of the Congo state to Belgium, they wished to remind the country of the necessity of insisting upon clear evidence of complete and effective change of system, and of not relying upon mere paper promises. The memorial said that although eighteen months had elapsed since the annexation, there had not been a change in the system of government. The promised reforms were utterly insufficient. No legislation had been drafted for the recognition of native rights in land and the Belgian Colonial Minister had repeatedly declared that no such rights exist. The Belgian government withheld the native rights to trade in the land's produce and treated that produce as tribute which the natives, as heretofore, were forced to gather for the government. "The Belgian government now declare that they will as an act of condescension permit the natives of the Congo to trade under such conditions and at such periods as are set forth in the decree of March 22 last—e. g., in one-half the Congo from July of this year; in one-third of the other half in July, 1911; in the second third of the other half, in July, 1912, while so far as the remaining territory is concerned no date is mentioned. In other words, the Belgian government assert their right not merely to maintain the evil system, but after benefiting from it for eighteen months, actually to prolong it for further extensive periods." For explorations in Belgian Congo in 1910, see EXPLORATION, *Detailed Survey of Africa*.

**CONGO, FRENCH.** See FRENCH CONGO.

**CONGO FREE STATE.** See CONGO, BELGIAN.

**CONGREGATIONALISTS.** Congregational Church is a term applied to a body of Christian believers, the rise of whose organized church life began with the Puritan movement in Eng-

land during the latter half of the sixteenth century. The congregations in the United States constitute the eighth largest religious body. Congregationalism in its churches is found in their relation to each other, under—first, a group of churches in annual session which is called an "Association"; second, all the churches of a State, meeting annually, called "conference"; and third, National Council, the constituency of which is formed by delegates in triennial sessions from all the associations and conferences. The chief organizations, under the auspices of which the benevolent and missionary work of the churches is carried on, are: the American Board of Commissioners for Foreign Missions; the Congregational Education Society; the Congregational Church Building Society; the Congregational Home Missionary Society; the American Missionary Association; the Congregational Sunday School and Publishing Society; the Congregational Board of Ministerial Relief. There are also the Woman's Foreign Mission Boards, and the Woman's Auxiliaries, for home missionary work. For fellowship, culture and inspiration, organizations called clubs are maintained. There are about fifty such bodies in the United States. A license to preach is granted in some States by associations of the churches. Ministerial standing is vested in either a local or a ministerial body as determined by locality. In pastoral relations a minister is found serving a church as supply, under a temporary arrangement; as pastor, whose term of service is defined; as pastor installed, in which case the incumbent is inducted into office by ecclesiastical council, convened by letter-missive; and as pastor, recognized, in which case a council convened by letter-missive approves the course of the parties contracting and gives a token of its fellowship in services appropriate to the occasion. There is hardly any doubt that the day of the ecclesiastical council for installing a pastor is passing away.

The theological seminaries known as Congregational are, Yale, opened in 1822 (undenominational); Bangor, 1816; Hartford, 1834; Oberlin, 1835; Chicago, 1855; Pacific, 1869; and Atlanta, 1901. In these institutions are 372 undergraduates and 118 instructors. Forty colleges were founded by Congregationalists. In these are enrolled 23,097 students. The instructors number 1842. In their libraries there are 1,665,239 volumes. The amount of productive funds is \$2,964,485,689. On January 1, 1910, Congregationalists numbered 730,718, in the United States. There were at that date, as reported, 5991 churches and 5988 ministers. The Sunday school enrolled 696,367 members. For home expenses the amount was \$9,107,519. The total of contributions was \$2,813,242, which was distributed as follows: Foreign Missions, \$599,289; Education, \$246,108; Church Building, \$109,665; Home Missions, \$662,060; American Missionary Association, \$181,772; Sunday school work, \$65,851; ministerial relief, \$36,729; and for other purposes, \$952,668. World-wide Congregationalism reports, 14,166 churches and chapels; 1,373,557 members, and 1,598,105 members in Sunday schools.

The last National Council assembled in Boston, October, 1910, and discovered in its discussions and resolutions a decided trend toward centralization for the sake of a larger efficiency. Committees on ministerial and religious education will work to conserve and strengthen

the intellectual culture of the ministry, and a more scientific understanding and application of biblical literature and teaching, especially in the interest of the young. A commission on apportionment was created to develop the benefit of the churches for missionary service. A commission of nineteen was created with a view to expansion under an increased secretarial force. The feeling is decidedly optimistic and large things, it is expected, will be realized.

The next session of the National Council will be held in Kansas City, Mo., 1913. The officers are: Moderator, Rev. Nehemiah Boynton, D. D., Brooklyn, N. Y.; Secretary and Editor, Rev. Asher Anderson, D. D., Boston, Mass.; Treasurer and Registrar, Rev. Joel S. Ives, Hartford, Conn.

**CONGREGATIONAL METHODIST CHURCH.** A religious denomination which had its source in objections made to certain features of the episcopacy and itineracy of the Methodist Episcopal Church in Georgia. A conference was held in Georgia in May, 1852. This adhered strictly to the doctrine of Methodism, but adopted the Congregational form of government. The movement extended into the States of Alabama, Florida and Mississippi. Churches at the present time are found in most of the Southern and some of the Northern States. According to the religious census made by the United States Census Bureau in 1906 and published in 1910, the denomination had in the former year 14,279 communicants, with 262 church edifices and 324 ministers. These figures show a marked growth of the denomination in the decade 1890 to 1910. According to statistics gathered by Dr. H. K. Carroll, in 1910, the denomination had in that year, 15,529 communicants, 333 churches and 337 ministers. The missionary work of the denomination is not carried on through any subsidiary organizations as is the case of most denominations, but is the general concern of all the churches and members. The only educational institution identified with the denomination is the Atlanta Bible School, which is under the control of an incorporated board elected by the General Conference. The denomination maintains a publishing house at Atlanta, Georgia.

**CONGRESS.** See UNITED STATES.

**CONNELLEY, W. E.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**CONNECTICUT.** One of the New England division of the United States and one of the thirteen original States. It has an area of 4990 square miles, of which 4845 square miles are land and 145 are water. Its capital is Hartford.

#### AGRICULTURE — CONNECTICUT CROP PRODUCTION

	Acreage	Prod. bu.	Value
Corn, 1910.....	63,000	3,352,000	\$2,279,000
1909.....	60,000	2,460,000	1,845,000
Oats, 1910.....	11,000	405,000	178,000
1909.....	11,000	302,000	160,000
Rye, 1910.....	10,000	200,000	172,000
1909.....	10,000	187,000	168,000
Buckwheat, 1910....	3,000	58,000	48,000
1909.....	3,000	58,000	58,000
Potatoes, 1910.....	35,000	4,375,000	3,062,000
1909.....	36,000	4,320,000	3,586,000
Hay, 1910.....	490,000	a662,000	12,578,000
1909.....	490,000	564,000	10,885,000
Tobacco, 1910.....	13,400	b23,182,000	3,825,000
1909.....	13,400	22,110,000	3,648,000

a Tons.

b Pounds.

**POPULATION.** The population of the State in 1910 according to the Thirteenth Census was 1,114,756, as compared with 908,420 in 1900, and 746,258 in 1890. The gain in the decade from 1900 to 1910 was 22.7 per cent. The State ranks thirty-first in point of population, whereas in 1900 it ranked twenty-ninth. The population of the larger towns and cities will be found in the tables in the article UNITED STATES CENSUS.

**EDUCATION.** The number of children between the ages of 14 and 16 in the State in the school year 1909-10 was 242,662. The average attendance was 147,190. The average enrollment was 190,353. The average monthly salary of men teachers was \$123, and of women teachers, \$54.51. The legislature of 1909 passed a number of important measures relating to education. Among these was an act providing that no certificate of age shall be given to any child under 16 years of age unless such child shall be able to read with facility, to write simple sentences in the English language and perform the operations of the fundamental rules of arithmetic up to and including fractions. It is provided, however, that foreign-born children may be given a certificate if over 14 years of age and if they have had an equivalent education in their native language. Measures were also passed providing for the establishment of trade schools in two towns of the State. Each town is required to furnish by transportation and otherwise school accommodations so that every child over 7 and under 16 years of age can attend school.

#### POLITICS AND GOVERNMENT

There was no session of the legislature in 1910, as the sessions are biennial, and the last was held in 1909. The session for 1911 opened January 8th.

**CONVENTIONS AND ELECTIONS.** The Democratic State convention was held September 8th. Simeon E. Baldwin, former chief justice of the State, was nominated with practical unanimity for governor. The platform declared in favor of the income tax amendment, for the popular election of Senators, for the control of public utilities, abolition of the \$5000 death limit, compensation act for workmen, direct primaries, strengthening the corrupt practices act and civil service rules for State employees. The Republican convention was held on the 14th and concluded a very active canvass for the nomination between Charles A. Goodwin, former private secretary to Governor Lilly, and Lieutenant-Governor Everett J. Lake, both of Hartford. Each side entered the convention confident of success. There were 580 delegates. On the first ballot Goodwin had 295 votes and Lake 285, and then the claim was made that extra ballots were found under the counters' table. After some contention a second ballot was taken which resulted in: Goodwin, 318; Lake, 259. The Republican platform gave the administration of President Taft a strong endorsement, pointed to a reduction of two and three-quarters millions in the State debt by successive Republican administrations, declared for the control of public utilities, the abolition of the \$5000 death limit, the employers' liability act, strengthening the veto of the governor which can now be overturned by a majority vote, and for a redistricting of the State to get rid of the anomalous condition of Congressmen-at-Large. The ill-feeling developed through the

convention lasted through the campaign, and Baldwin was elected governor by a plurality of 3980 over Goodwin. All the other Republican candidates on the State ticket were elected by pluralities ranging from 4669 to 6574. As Congressmen, Tilson was re-elected at large by 6265, as against 41,528 in 1908; Henry, in the First District, by 1235, as against 11,235; Higgins, in the Third District, by 78, as against 5745 (and his election was contested); Hill, in the Fourth District, by 2843, as against 13,420. In the Second District, Thomas L. Reilly, Democrat, defeated A. N. Shepard by 3012, as against a Republican plurality two years earlier of 9257. An interesting detail of the election was that the Socialist vote for governor rose from 4827 in 1908 to 12,179, while the Prohibition vote fell from 2597 to 1811. The total vote cast for governor on all tickets was 22,886 less than two years earlier. During the campaign a lively controversy developed between Judge Baldwin and ex-President Roosevelt, in the course of which the former threatened to sue the latter, but he afterwards announced that he had no such intention. In the different counties the Republicans elected their sheriff, in Hartford, New London, Middlesex and Windham counties, and the Democrats elected theirs in New Haven, Fairfield, Litchfield and Tolland counties.

**STATE OFFICERS.** Governor, Simeon E. Baldwin; Lieutenant-Governor, Dennis A. Blakeslee; Secretary of State, Matthew H. Rogers; Treasurer, Costello Lippitt; Auditors, William P. Bailey and Edward S. Roberts; Comptroller, Thomas D. Bradstreet; Attorney-General, John H. Light; Commissioner of Agriculture, Governor *ex-officio*; Superintendent of Education, Charles D. Hine; Commissioner of Insurance, Theodore H. Macdonald—all Republicans except Governor.

**JUDICIARY.** Supreme Court: Chief Justice, Frederick B. Hall, Republican; Associate Justices, S. O. Prentice, Republican; George W. Wheeler, Democrat; John M. Thayer, Democrat; Alberto T. Roraback, Republican; Clerk, George A. Conant.

**STATE LEGISLATURE, 1911.** Senate, Republicans, 21; House, 159; Joint Ballot, 180. Democrats, Senate, 14; House, 97; Joint Ballot, 111. Republican majority, Senate, 7; House, 62; Joint Ballot, 69.

**CONNOR, RALPH.** See LITERATURE, ENGLISH AND AMERICAN, Fiction.

**CONSERVATION.** The subject of conservation received as much attention in 1910 as in 1909, although there was perhaps less violent discussion. The political aspects were less prominent, pending the investigation of the Congressional Committee appointed to examine into the Ballinger-Pinchot affair. The results of this investigation will be found in the article UNITED STATES, in the section on History. There also will be found an account of the deposition of Mr. Pinchot as Chief Forester and the events which led up to that action by President Taft. The withdrawal of public lands of various classes from entry as a result of the passage of new laws relating to conservation will be noted under the title PUBLIC LANDS. (See also FORESTRY.) The present article is a résumé of the most important events dealing with the subject of conservation as distinct from its directly political aspects.

**WHAT IS CONSERVATION?** Conservation of the

natural resources of the country as a popular movement began with a Conference of Governors, held in Washington, May 13-15, 1908. As a result of this meeting President Roosevelt on June 8, 1908, appointed a National Conservation Commission. This commission held a meeting during the first week in December in 1908, at which an inventory of the resources of the country was discussed. During the same month this inventory and report were considered at a joint conference of State and national commissions, and commissions or committees appointed by national organizations. This joint conference approved and supplemented the report of the commission which was submitted to President Roosevelt and was by him in January, 1909, transmitted to Congress with a message signifying his approval. This inventory, comprising two large volumes, is probably the most complete quantitative statement of the natural resources ever prepared for any country.

At the joint conference in December President Roosevelt was authorized to invite Canada and Mexico to unite with the United States in a movement for taking stock of the natural resources of the North American Continent. This invitation was accepted and each country designated three commissioners to meet at Washington with a like number of American commissioners on February 18, 1909. This meeting was called the North American Conservation Conference. It was signally harmonious and resulted in many important recommendations. An especially noteworthy feature of this conference was the unanimous opinion that the time had now come for rendering the conservation movement world-wide in scope. When this opinion was submitted to President Roosevelt he promptly responded by addressing invitations to all civilized nations to join in a conference devoted to the consideration of the world's natural resources, to be held at The Hague at such date as might be found convenient.

The Sixtieth Congress, during its closing days, refused to continue the appropriation for the National Conservation Commission. This body thereupon went out of existence. A statement of principles, prepared by the Conference of Governors, May 13-15, 1908, was as follows:

"We do hereby declare the conviction that the great prosperity of our country rests upon the abundant resources of the land chosen by our forefathers for their homes, and where they laid the foundation of this great Nation.

"We look upon these resources as a heritage to be made use of in establishing and promoting the comfort, prosperity, and happiness of the American People, but not to be wasted, deteriorated, or needlessly destroyed.

"We agree that our country's future is involved in this; that the great natural resources supply the material basis on which our civilization must continue to depend, and on which the perpetuity of the Nation itself rests.

"We agree that this material basis is threatened with exhaustion.

"We agree that the land should be so used that erosion and soil-wash shall cease; that there should be reclamation of arid and semi-arid regions by means of irrigation, and of swamp and overflowed regions by means of drainage, that the waters should be so conserved and used as to promote navigation, to enable the arid regions to be reclaimed by irrigation, and to develop power in the interests of

the people; that the forests which regulate our rivers, support our industries, and promote the fertility and productiveness of the soil should be preserved and perpetuated; that the minerals found so abundantly beneath the surface should be so used as to prolong their utility; that the beauty, healthfulness, and habitability of our country should be preserved and increased; that the sources of national wealth exist for the benefit of the People, and that monopoly thereof should not be tolerated.

"We declare our firm conviction that this conservation of our natural resources is a subject of transcendent importance, which should engage unremittingly the attention of the Nation, the States, and the People in earnest co-operation.

"We agree that this coöperation should find expression in suitable action by the Congress and by the legislatures of the several States.

"Let us conserve the foundations of our prosperity.

"We, therefore, form this Association to advocate and support the adoption by the people themselves and by their representatives of definite and practical measures to carry the foregoing principles into effect, and to oppose in all appropriate ways all action which is in conflict with these principles, whether such action is attempted by individual citizens or by legislative or administrative officials. Among such measures are the following:

"The protection of the source waters of navigable streams, through the purchase or control by the Nation of the necessary land within their drainage basins, especially in the Southern Appalachians and the White Mountains.

"The enactment and enforcement, both by the Nation and by the several States, of effective laws to prevent, by active patrol during dry weather, and by other appropriate means, the spreading of fire in all forests, whether publicly or privately owned.

"The reasonable but effective public regulation of timber cutting on forest land, whether publicly or privately owned, the conservation of which is essential to the public welfare.

"The separation, for purposes of taxation, of the timber from the land on which it grows, so that the forest crop shall be taxed only when it is harvested, while the land shall be taxed every year.

"The support and extension of practical forestry.

"WATERS. The preparation, by a Commission appointed by the President of the United States, of a comprehensive plan for waterway improvement, extending to all the uses of the waters and the benefits to be derived from their control, including navigation, with the relation of railroads and terminals thereto, the development and disposition of water power, the irrigation of arid lands, the drainage of swamp and overflowed lands, the control of floods, the prevention of soil-wash, and the purification of streams for water supply.

"The immediate undertaking and continuous prosecution of works clearly necessary under such general plan.

"The incorporation into all future grants of water-power rights by State or Nation of provisions to secure the following:

"(a) Prompt development, on pain of forfeiture of the grant.

"(b) Payment of reasonable compensation

for the benefits granted by the people, with periodic readjustment of the rate of compensation, so as to insure justice both to the investor and to the public.

"(c) The limitation of all such grants to periods not exceeding fifty years, and the reservation of the right to terminate and acquire or reconvey the grant for proper cause and upon equitable compensation; together with proper inspection and publicity of records and accounts.

"(d) Recognition of the right of the appropriate public authorities to make reasonable regulations as to rates of service.

"The termination of all existing permits or grants for the development of water power and the substitution of new grants involving the foregoing principles as soon and to such extent as may be consistent with the terms of the existing grants.

"The support and extension of the irrigation of arid lands and the drainage of swamp and overflowed lands.

"LANDS. The directing of public attention to the need for preserving the fertility of our soils, and thus protecting the future food supply of our people.

"The enactment of legislation whereby the title to the surface of public lands and to the minerals therein shall be granted separately, with every appropriate facility to miners to acquire such part of the surface as may be needed in the development of their claims.

"The conservation and control of the unappropriated public range lands by the government in the interests of the stockman and homemaker, and subject at all times to homestead entry.

"MINERALS. The retention by the government of the title to all lands still in public ownership which contain phosphate rock, coal, oil, or natural gas, and the development of the same by private enterprise, under conditions that will prevent extortion and waste.

"The enactment of appropriate legislation to prolong our coal supply, to reduce waste in mining, and to establish sufficient safeguards against the loss of life in mines.

"We desire to further all legislation which is wisely designed to diminish sickness, prevent accidents and premature deaths, and increase the comfort and joy of American life, believing that human efficiency, health and happiness are natural resources quite as important as forests, waters, lands and minerals.

"The foregoing enumeration is intended to indicate the general character of some of the measures which this organization believes should be adopted to carry the principles of conservation into practical effect. It will, however, cooperate in every appropriate way with other organizations and with the development of our natural resources, and to bring to this cooperation the vigorous support of an intelligent and disinterested citizenship."

CONSERVATION IN 1910. The National Conservation Association which was organized in 1909 under the presidency of Charles W. Elliot continued an active propaganda in 1910. Gifford Pinchot, following his deposition as Chief Forester, was elected president of the association early in 1910. Mr. Pinchot at once began an active campaign and immediately following his retirement as Chief Forester issued a statement in which he criticised Congress for refus-

ing to continue the National Conservation Commission and declared that unless immediate congressional action was taken the water powers of the country would pass into the hands of special interests without charge and without limit of time. The same he declared would be true of phosphate deposits and with the coal deposits in Alaska. He asserted that in the absence of proper legislation, two great conservation plans for the public welfare might fail. The first was the control of water powers of navigable streams in the public interests and the second was the construction of a deep waterway from the Great Lakes to the Gulf. (See WATERWAYS.) "The first great immediate danger," he said, "is that water powers will be lost, and the second is that the coal lands will be lost, but these specific dangers of public loss are merely parts of the great issue between the special interests and the rest of us."

Mr. Pinchot's statement was issued on the same day on which President Taft sent to Congress his expected message on conservation. The President made it plain that he did not differ materially from President Roosevelt in his views on the subject. He showed, in addition, that he had a specific and progressive programme which he presented to Congress. He pointed out that in 1860 the public domain included 1,065,911,288 acres, which had at the present time been reduced to 731,354,081 acres, not including Alaska. This area is confined largely to the mountain ranges and the arid and semi-arid plains. After pointing out the lax methods that had formerly prevailed in distributing these lands he said that in recent years there had developed a deep concern in the public mind regarding the preservation and proper use of our natural resources. To President Roosevelt he gave the credit for beginning the investigation into the violation of the public land law, and the prosecution of land frauds which had been vigorously continued under his own administration. His recommendations for legislation, which he declared that he believed would go far toward the solution of many of the difficult problems, related to the administration of public lands, to improvement of water power sites and coal lands, to irrigation projects and to inland waterways. He urged the immediate prosecution of plans for the deepening of the Ohio River and the Upper Mississippi River in the northwest, he advocated the passage of an act permitting a \$30,000,000 bond issue, while for the proper disposal of the public lands and prevention of water power monopoly, he recommended the enactment of bills prepared by the Secretary of the Interior.

The bills prepared by Secretary Ballinger were nine in number and they were introduced in Congress on January 18th. The most important of these was the one which gave clear authority to the Executive to guard the public domain by the withdrawal of lands. This bill was to give the President power by Congress to perform those acts which Mr. Roosevelt had carried into effect by executive action. His authority to do this had been questioned and to the criticisms of this action was largely due the political agitation which went on in the latter part of 1909. This bill had the support of Mr. Pinchot and the National Conservation Association. The second bill related to coal lands and the third to phosphate, oil, asphalt and natural gas lands. These bills separated the surface

of the land from the underlying minerals and provided for the disposal of minerals by lease and not by sale. A fourth bill dealt with water power sites and the fifth with reclamation projects. The latter permitted the sale of land to any persons except actual residents or occupiers of the reclaimed land. Still another bill was one providing for the sale of timber lands and another for classifying public lands. Of these bills the last three were strongly criticised by Mr. Pinchot, for various reasons.

**CONGRESSIONAL LEGISLATION.** All the bills recommended by the President were passed, although some in changed and modified form. He was authorized "at any time in his discretion to temporarily withdraw from settlement, location, sale or entry any of the public lands of the United States . . . and reserve the same for water power sites, irrigation and other public purposes." The withdrawals remained effective until revoked by the President or by Congress, but the lands withdrawn are open to exploration and to the purchase of minerals other than coal, oil, gas and phosphate. The withdrawals do not affect bona fide occupants or claimants who are diligently prosecuting work on such lands at the time of the passage of the act and no additions to the forest reserves are to be made in Oregon, Washington, Idaho, Montana, Colorado or Wyoming, except by act of Congress. A measure was passed authorizing certificates of indebtedness to the amount of \$20,000,000 for the purpose of completing existing reclamation projects. This was \$10,000,000 less than the President asked for in his message. An act was passed expressly authorizing the reservation of power and reservoir sites for Indian reservations. The Act for admitting New Mexico and Arizona as States makes similar reservations upon lands granted to the new States. A bill for the purchase of the Appalachian and White Mountain national forests passed the House but was not acted upon in the Senate. An agreement was reached, however, by which this measure will be finally voted on in the Senate on February 15, 1911.

**STATE LEGISLATION.** The conservation of natural resources has occupied legislative attention in the States for several years. As a result of the Conference of Governors early in 1908 many States have appointed national conservation commissions. The only State added to this list in 1910 was Maryland. This commission is made up of three unpaid members who are to study the problem of conservation, cooperate with conservation boards of other States and with the Federal government and to prepare publications on the subject. The only other legislation of similar character during the year was in New York, where the Forest, Fish and Game Commission received an appropriation to purchase and propagate trees to reforest lands in the forest reserves.

**CONSERVATION CONGRESS.** The second Conservation Congress was held in St. Paul, Minnesota, in the first week in September. There was in attendance a notable company of statesmen, business and professional men. Additional interest and importance was given to the meeting by the fact that President Taft and Mr. Roosevelt both made addresses. This afforded an opportunity for comparing the theories on conservation held by each. The President's address was given on September 5 and Mr. Roosevelt's on the follow-

ing day. The President's address was a calm, dispassionate summary of the whole question of conservation with an outline of the measures which he deemed it necessary to take for the best interests of the movement. He unequivocally praised certain measures taken by Mr. Roosevelt, but did not hesitate to criticize some of the conservation policies of the latter's administration. To the important question whether the water power sites should be controlled by the general government or by State governments Mr. Taft did not give a positive opinion. He said, however, that he would submit the matter to Congress and urge that one or the other of the two plans be adopted. He stood out clearly, however, in his demand for a clear recognition of the rights of the States in the disposal of any reserves. Upon this policy he differed directly from President Roosevelt, who on the next day made a ringing plea for the "new nationalism" and denounced the whole argument of State's rights as an invention of those selfish interests with whose predatory purpose the conservation movement had interfered. This was practically the only point on which the theories of President Taft and Mr. Roosevelt in regard to the general subject of conservation differed. The platform of the Congress as finally adopted contained a specific declaration in favor of the policy of national control. The Congress elected Henry Wallace as its president, Mr. Pinchot having declined in the interest of harmony to accept another term of office.

**NATIONAL CONSERVATION ASSOCIATION.** The association during the year followed the progress of conservation legislation closely and offered constructive suggestions which yielded excellent results. Largely through its efforts the principle of the separate disposal of the surface of public lands and the underlying mineral fuels was applied, by act of Congress, to all withdrawn coal lands. The principle of the withdrawal of public lands so as to provide for their disposal in the interest of the people has been expressly recognized by Congress. The association heartily supported the measure for the establishment of a National Bureau of Mines.

Measures which in its opinion violated the principles of conservation were vigorously opposed by the association. Among those in which this opposition was successful were the Smoot Bill, which proposed to turn over to the States all the water power sites owned by the Federal government, and the James River Dam License Bill, which was vetoed by President Roosevelt during the previous session of Congress, but was reintroduced. In conjunction with experienced engineers in water power development and representatives of hydro-electric water power companies, the association, through its counsel, proposed an outline of water power policy for application both in the States and in the Federal government.

During the year the association perfected its organization and systematized its work. Many pamphlets relating to conservation were issued during the year.

**CONSERVATION ASSOCIATION, NATIONAL.** See CONSERVATION.

**CONSERVATION COMMISSION, NATIONAL.** See CONSERVATION.

**CONSERVATION CONGRESS.** See CONSERVATION.

**CONSTANTINE BRIDGE.** See BRIDGES.  
**CONSTANZA DOCK.** See DOCKS AND HARBORS.

**CONSTITUTIONAL AMENDMENTS, COLORADO.** See COLORADO, POLITICS AND GOVERNMENT.

**CONSTRUCTION.** See ARCHITECTURE.

**CONSULAR SERVICE.** See CIVIL SERVICE and UNITED STATES.

**CONSUMPTION.** See TUBERCULOSIS.

**CONSUMPTION OF LIQUORS.** See LIQUORS, FERMENTED AND DISTILLED.

**CONTEMPT PROCEEDINGS.** See INFUNCTIONS.

**CONTERNO, LUCIANO.** See NECROLOGY.

**CONVENTIONS AND PLATFORMS.** See articles on States of the United States.

**CONVICT LEASE SYSTEM.** See PENOLOGY.

**COOK, E. T.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**COOK, JOEL.** An American Congressman and writer, died December 15, 1910. He was born in Philadelphia in 1842 and was educated in the public schools in that city. He studied law and was admitted to the bar in 1863. Adopting journalism as a profession he acted as war correspondent of the Army of the Potomac in 1862-3. He accompanied McClellan on the Peninsular Campaign, of which he wrote a history, *The Siege of Richmond* (1865). He afterwards became Washington correspondent of the Philadelphia Press and was present as correspondent at the battles of Antietam and Gettysburg. He made two tours of Europe, of which he wrote descriptive letters; some of which were afterwards published in book form under the title *A Holiday Tour in Europe*. He was identified with trade interests in Philadelphia and frequently appeared before Congress and legislative committees to advocate legislation advantageous to those interests. He was at one time President of the Philadelphia Board of Trade and was a member of the Board of Public Education. He was elected to Congress in 1907 and was re-elected in 1908. In addition to the works mentioned above he was the author of *An Eastern Tour at Home; England, Picturesque and Descriptive; America, Picturesque and Descriptive; France, Switzerland and the Rhine, and A Visit to the States*.

**COOPER, EDWARD HERBERT.** An English novelist, died May 26, 1910. He was born in Trentham, and was educated at the University College, Oxford. His novels of racing and sporting life are notable. Among his published works are: *Geoffrey Hamilton* (1893); *Monk Wins* (1901); *A Fool's Year* (1901); *George and Son* (1905) and *The End of the Journey* (1908).

**COOLIDGE, L. A.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**COOPER, Colonel DUNCAN H.** See TENNESSEE.

**CO-OPERATIVE AND BENEFIT SOCIETIES.** See FRATERNAL ORGANIZATIONS.

**COOPER UNION FOR THE ADVANCEMENT OF SCIENCE AND ART.** An institution founded in New York City in 1857 by Peter Cooper for free instruction in science and art. The institute includes the following departments: Night school of science; night school of art; day school of technical science; women's art school; school of stenography and typewriting for women; school of telegraphy for women; debate and elocution; and civics and

economics. The total enrollment in all these departments in 1910 was 3404. This represents the total capacity of the present building occupied by the institute. It has over 4000 applications for admission annually in excess of the accommodations. A site has been purchased directly opposite the present building in Cooper Square, but funds have been lacking for construction. During the year 1909-10 the attendance was distributed as follows: Night school of science, 1329; night school of art, 1334; woman's art school, 220; school of stenography and typewriting for women, 51; school of telegraphy for women, 30; debate and elocution, 225; civics and economics, 90. The total revenue from the State amounts to about \$80,000 a year and the expenditure to about \$90,000. The endowment is about \$4,000,000. The officers in 1910 were: President, John E. Parson; Secretary, R. Fulton Cutting, and Treasurer, Edwin R. Hewitt.

**COPENHAGEN.** See DENMARK.

**COPENHAGEN, INTERNATIONAL SOCIALIST CONGRESS AT.** See SOCIALISM.

**COPPER.** The production of copper in the United States in 1909 exceeded the production of any other year in the history of the industry. It surpassed the production of 1908 by 150,380,903 pounds or 15.95 per cent. The table below, compiled by the United States Geological Survey, gives the production of copper in the United States by States in 1908 and 1909:

PRODUCTION OF COPPER IN UNITED STATES

(Smelter output in pounds fine).

	1908.	1909.
Alaska .....	4,438,836	4,057,142
Arizona .....	289,523,267	291,110,298
California .....	39,643,825	53,568,708
Colorado .....	13,943,878	11,485,631
Idaho .....	7,256,086	7,096,132
Massachusetts .....	7,863	.....
Michigan .....	222,289,584	227,005,923
Montana .....	252,503,651	314,858,291
Nevada .....	12,241,372	53,849,281
New Mexico .....	4,991,351	5,031,136
North Carolina .....	29,391	120,451
Oregon .....	271,191	245,403
Tennessee .....	19,710,103	19,207,747
Utah .....	71,370,370	101,241,114
Virginia .....	25,087	231,971
Washington .....	162,201	120,611
Wyoming .....	2,416,197	433,672
Maryland .....	.....	.....
Alabama .....	.....	.....
South Carolina .....	30,488	.....
Texas .....	.....	3,456
South Dakota .....	.....	41,988
Pennsylvania and New Hampshire .....	135,139	1,083,033
Missouri and unapport'd .....	1,580,831	2,159,636
	942,570,721	1,092,951,624

The total production of new refined copper in 1909 was 1,391,021,454 pounds and this also was the largest output in the history of the industry, exceeding that of 1908 by 253,059,046 pounds. Of this, 1,065,564,921 pounds were of domestic origin and 325,456,533 pounds of foreign origin. Figures for Lake copper include 31,500,113 pounds of Lake copper that was electrolytically refined. In addition to the amount produced from primary sources the regular refining plants recovered 14,598,065 pounds from secondary sources, making a total output of 1,405,619,599 pounds for these plants. If this is added to the output of the regular refineries the contribution of the United

States to the world's supply of copper is found to be 1,480,467,686 pounds.

According to figures compiled by the *Engineering and Mining Journal*, the production of copper in 1910 was 1,445,000,000 pounds. This figure is based on the report of the Copper Producing Association for the first eleven months of the year to which have been added an estimate for December. The production of copper in the United States by States in 1910 was as shown in the accompanying table taken from the same source:

PRODUCTION OF COPPER IN THE UNITED STATES  
(In Pounds).

State.	1910.
Alaska .....	5,450,000
Arizona .....	297,081,605
California.....	45,141,043
Colorado.....	8,867,401
Idaho.....	5,317,039
Michigan.....	219,000,000
Montana.....	288,449,425
Nevada.....	63,778,000
New Mexico.....	5,700,000
Utah.....	127,906,115
Wyoming.....	200,000
Southern States and East .....	17,039,356
Other States .....	2,176,443
Total.....	1,086,161,430

During 1907 and 1909 the consumption of copper in the world was less than the production and as a consequence stocks accumulated until at the end of 1909 the available supply amounted to about 386,000,000 pounds. During 1910 the consumption overtook the production. The *Engineering and Mining Journal* estimates that while the consumption increased about 10 per cent., the production decreased by 2 per cent., and the total supply in 1910 had been decreased to 307,000,000 pounds. In Europe the increased consumption was due chiefly to increased activity in electrical branches. In the United States, owing chiefly to the scarcity of capital, large enterprises could not be financed. In spite of this, however, the consumption of copper increased and it was remarkably large in view of the general depression in trade, particularly in the iron and steel business during the year. This condition reflects a constantly increasing demand in the way of electrical conveniences in the building trade.

The world's production of copper in 1909 and 1910 is indicated in the following table, which was compiled by the *Engineering and Mining Journal* from various sources.

WORLD'S PRODUCTION OF COPPER  
(In Metric Tons).

Country.	1909.	1910.
United States .....	501,372	492,675
Mexico.....	57,230	59,769
Canada.....	21,620	22,865
Cuba.....	3,006	3,529
Australasia.....	34,952	43,000
Chile.....	42,726	41,500
Peru.....	16,257	20,500
Japan.....	42,987	41,000
Russia.....	18,035	23,500
Germany.....	23,500	24,800
Africa.....	15,185	16,000
Spain and Portugal.....	53,023	49,500
Other countries .....	24,317	25,000
Totals .....	954,316	863,638

The average prices per pound for copper in

New York and London in 1909-10 are shown in the following table, also from the *Engineering and Mining Journal*.

AVERAGE PRICES OF COPPER

	New York.				London.	
	Electrolytic		Lake.			
	1909.	1910.	1909.	1910.	1909.	1910.
January.	13.893	13.620	14.280	13.870	61.098	60.923
Feb'y. . .	12.949	13.332	13.295	13.719	57.688	59.388
March. . .	12.387	13.255	12.826	13.589	56.231	59.214
April. . .	12.564	12.733	12.934	13.091	57.363	57.238
May . . .	12.893	12.550	13.238	12.885	59.338	56.313
June . . .	13.214	12.404	13.548	12.798	59.627	55.310
July . . .	12.980	12.215	13.362	12.570	58.556	54.194
August. .	13.007	12.490	13.296	12.715	59.393	55.733
Sept. . .	12.870	12.379	13.210	12.668	59.021	55.207
October .	12.700	12.553	13.030	12.788	57.551	56.722
Nov. . .	13.125	12.742	13.354	12.914	58.917	57.634
Dec. . .	13.298	12.581	13.647	12.863	59.906	56.069
Year.	12.982	12.738	13.335	13.039	58.732	57.054

New York, cents per pound. Electrolytic is for cakes, ingots or wire bars. London, pounds sterling, per long ton standard copper.

According to the Bureau of Statistics, imports of copper including all varieties for the first eleven months of 1910 amounted to 255,237,942 pounds, and the total imports for the year were estimated at 338,000,000 pounds as against 321,801,114 pounds in 1909. Estimates from the same source indicate that the exports of copper during the year may reach 700,000,000 pounds as compared with 681,846,726 pounds in 1909. See ATOMIC WEIGHTS.

COPPER RIVER BRIDGE. See BRIDGES.

**COPYRIGHT.** During 1910 the Berlin International Copyright Convention came into force; the new British consolidated Copyright Bill was introduced, and the Pan-American Copyright Convention (ratified by the Senate, February 15, 1911) was signed by the United States and by all of the Latin-American countries. These significant copyright movements are summarized under the heading INTERNATIONAL COPYRIGHT. They give new importance to the "Act to amend and consolidate the acts respecting copyright" under which copyright is secured in the United States, and as this Act has not heretofore been dealt with a detailed analysis of its provisions is supplied here.

This Act, which went into effect on July 1, 1909, brought about a fundamental change in our law, in providing that copyright is secured by publication of the copyrightable work with the statutory notice. This Act further provides, however, that copyright may also be obtained for certain works, when not reproduced in copies for sale, upon the deposit for registration in the Copyright Office of one complete copy in the case of photograph, drama, musical composition, or lecture; or of a photograph or other identifying reproduction in the case of a work of art, plastic work, or drawing; but whenever such works are afterwards published, a second deposit and registration is obligatory.

**COPYRIGHT INCLUDES** all the "writings of an author," classified by the Act as follows: (a) books; (b) periodicals, including newspapers; (c) lectures, sermons and addresses; (d) dramatic or dramatico-musical compositions; (e) musical compositions; (f) maps; (g) works of art, models or designs for works of art; (h) reproductions of a work of art; (i) drawings or

plastic works of a scientific or technical character; (j) photographs, and (k) prints and pictorial illustrations. Works published before July 1, 1909 (not already copyrighted), and publications of the United States government cannot obtain copyright protection.

Copyright secures the exclusive right (1) to print, reprint, publish, copy, and vend the copyrighted work; (2) to translate, dramatize, arrange or adapt it; (3) to deliver a lecture or other oral work in public for profit; (4) to perform or publicly represent a drama; and, if unpublished, to vend any manuscript or record thereof, or to make any transcription or record and represent or reproduce it; (5) to convert a drama into a novel; (6) to finish a model or design for a work of art, and (7) to perform publicly for profit a musical composition, or "to make any arrangement or setting of it or of the melody of it in any system of notation or any form of record in which the thought of an author may be recorded and from which it may be read or reproduced." But this right includes only music published and copyrighted after July 1, 1909; and music by a foreign author or composer only when the foreign state or nation of which he is a subject grants to citizens of the United States similar rights; and whenever the owner has used or permitted the use of his work for mechanical reproduction (notice of which must be filed in the Copyright Office), any other person may make similar use of it upon payment of two cents on each mechanical part manufactured. If required, a monthly report must be furnished under oath of the number of such parts manufactured, and upon failure to pay the royalties due, the court may enter judgment, in addition to the royalties, not to exceed three times such amount.

COPYRIGHT MAY BE SECURED by the author or proprietor of a work, or his executors, administrators, or assigns; by an alien author when he is domiciled within the United States at the time of the first publication of his work, or when the foreign state or nation of which he is a citizen or subject grants to citizens of the United States copyright on substantially the same basis as to its own citizens, or substantially equal to the protection secured to such foreign author by our laws or by treaty. The citizens of Austria, Belgium, Chile, China, Costa Rica, Cuba, Denmark, France, Germany, Great Britain, Guatemala, Honduras, Italy, Japan, Luxembourg, Mexico, the Netherlands, Nicaragua, Norway, Portugal, Salvador, Spain, and Switzerland may secure the rights accorded by the Act of 1909, upon compliance with its requirements. On February 15, the Senate agreed to the ratification of the fourth Pan-American Copyright Convention.

NOTICE OF COPYRIGHT must be affixed to each copy of the work published or offered for sale in the United States (excepting books registered for *ad interim* protection) to consist of the word "copyright" or the abbreviation "copr.," and the name of the copyright proprietor, and (if a book, musical or dramatic work) the year of publication; but maps, reproductions of a work of art, photographs, prints and pictorial illustrations, and published drawings or plastic works, may be copyright, accompanied by the initials, monogram, mark, or symbol of the copyright proprietor, provided his name appears on some accessible portion of the work, or on the margin, mount, back, permanent base or pedes-

tal. Printing, altering, or removing such notice, with fraudulent intent; or selling or importing any uncopyrighted article bearing a copyright notice is punishable by a fine of from \$100 to \$1000.

DEPOSIT OF COPIES. After publication two complete copies of the best edition must be "promptly" deposited in the Copyright Office, or one copy of the issue or issues of a periodical containing a copyright contribution, accompanied in each case by an application for registration. The postmaster, if requested, must give a receipt for the copies and mail them without cost.

In default of this required deposit, no action or proceeding can be maintained for infringement of copyright, and the Register of Copyrights may at any time after publication demand the copies. Failure to then comply within the statutory period imposes a fine of \$100 and twice the price of the work, and the copyright becomes void.

AMERICAN MANUFACTURE. Foreign books in the English language (not for the use of the blind or claiming *ad interim* protection) and all books by citizens of the United States must be printed and bound in the United States and when deposited in the Copyright Office must be accompanied by an affidavit to that effect. A false affidavit involves a fine of not more than \$1000 and the forfeiture of the copyright. Dramatic compositions do not require to be printed in the United States, while periodicals must be so printed, but no affidavit is required. *Ad interim* copyright may be secured for a book printed abroad in the English language, upon the deposit in the Copyright Office (not later than 30 days after its publication abroad) of one copy for registration. If within the 30 days' *ad interim* protection from registration thus secured an authorized edition of such books is published in the United States in accordance with the manufacturing provisions, and two copies are promptly deposited for registration, the copyright is extended to the full term.

LITHOGRAPHS OR PHOTO-ENGRAVINGS, either when published separately or as illustrations within a book, must be produced by a process wholly performed within the limits of the United States, except when the subjects represented are located in a foreign country and illustrate a scientific work, or when the prints are reproductions of works of art.

IMPORTATION IS PROHIBITED of any *piratical* copies, and of *authorized* copies of books in the English language not printed in the United States, as well as of plates of such books not made from type set, or by lithographic or photo-engraving process performed in the United States, except: (1) works for the use of the blind; (2) newspapers or magazines; (3) books imported for the United States; (4) books imported (one copy), for use and not for sale, by societies or institutions incorporated for educational, literary, or religious purposes, or by public libraries; (5) books purchased *en bloc* for the use of such societies or libraries, or when imported in the personal baggage of persons arriving from foreign countries and not intended for sale, and (6) books imported not more than one copy at one time, for individual use and not for sale; not including, however, copies of a foreign reprint of a book by an American author copyrighted in the United States.

Copyright endures for a first term of 28 years from publication, and may be renewed for 28 years (in lieu of 14 years under the old law) in behalf of the original copyright proprietor in the case of posthumous works, periodicals, cyclopædias, or works copyrighted by corporate bodies (not as assignees of individual authors) or by employers for whom the works were made for hire. The copyright in other works (including contributions by individual authors to periodicals or cyclopædias) may be renewed for the second term, and the copyright subsisting in any work when the Act went into effect may be extended to the full term secured by the Act, in behalf of the author if still living, or the widow, widower, or children of a deceased author; or if none of these are living, then by the author's executors, or next of kin, provided application therefor has been duly registered in the Copyright Office within one year prior to the expiration of the existing term. The proprietor of a composite work may renew and extend the subsisting copyright in such work if it was originally secured by such proprietor.

**ASSIGNMENT.** Copyright is distinct from the property in the material object copyrighted, and the transfer of one does not imply the transfer of the other. Copyright may be assigned, granted, mortgaged or bequeathed. Every assignment of copyright must be recorded in the Copyright Office within three months, if made in the United States, or within six months, if executed abroad.

**INFRINGEMENT OF COPYRIGHT** is liable to injunction and settlement for actual damages and profits, or, in lieu thereof, payment as follows: (1) for a painting, statue, or sculpture, \$10 for every infringing copy; (2) for every other copyright work, \$1 for every infringing copy; (3) for a lecture, etc., \$50 for every infringing delivery; (4) for a dramatic or dramatico-musical or a choral or orchestral composition, \$100 for the first, and \$50 for every subsequent infringing performance, and (5) for other musical compositions, \$10 for every infringing performance. Damages are not to exceed \$5000 nor be less than \$50, and are not to be regarded as a penalty. Willfully and for profit to infringe copyright, or to aid or abet such infringement is a misdemeanor, punishable by imprisonment for not exceeding one year or a fine of from \$100 to \$1000, or both. No criminal action can be brought for infringement of musical copyright by the unauthorized manufacture, use or sale of parts of mechanical music-producing machines, but in a civil action an injunction may be granted, and a royalty of two cents on each such part may be recovered.

**JURISDICTION.** Copyright cases are originally cognizable by the circuit courts of the United States, the district court of any territory, the Supreme Court of the District of Columbia, the district courts of Alaska, Hawaii, and Porto Rico, and the courts of first instance of the Philippine Islands, and may be reviewed on appeal or writ of error. Criminal proceedings must be commenced within three years. Rules and regulations for the practice and procedure in copyright cases have been prescribed by the Supreme Court of the United States as expressly required by the Act of 1909. See also **INTERNATIONAL COPYRIGHT**.

**COPYRIGHT, INTERNATIONAL.** See **INTERNATIONAL COPYRIGHT**.

**COQUARD, ARTHUR.** See **NECROLOGY**.

**CORBETT, J. S.** See **LITERATURE, ENGLISH AND AMERICAN, History**.

**CORBIN, JOHN.** See **LITERATURE, ENGLISH AND AMERICAN, Poetry and Drama**.

**CORBIN, PHILIP.** See **NECROLOGY**.

**CORCORAN ART EXHIBITION.** See **PAINTING**.

**CORDILLERA.** See **EXPLORATION**, paragraphs on *America*.

**CORINTH.** See **ARCHÆOLOGY**.

**CORN. THE WORLD'S CROP.** The world's corn crop of 1910 was estimated at about 4,225,000,000 bushels.

**THE WORLD'S MAIZE PRODUCTION IN 1909 AND 1910**

	1909. Bushels.	1910. Bushels.
United States .....	2,774,611,890	3,128,233,870
Canada .....	19,273,535	18,741,118
Austria .....	16,073,845	17,232,970
Bulgaria .....	20,331,640	41,500,800
Spain .....	26,454,600	27,358,210
Hungary (Includ. Croatia and Slavonia) .....	182,962,485	213,359,635
Italy .....	94,888,840	97,830,200
Rumania .....	71,089,540	104,410,000
Russia .....	39,868,070	77,662,125
Switzerland .....	126,080	118,200
Algeria .....	807,610	512,060
Tunis .....	249,010	236,400
Argentina .....	175,500,000	
Chile .....	1,870,380	
New Zealand .....	630,400	

The above figures taken mainly from the Bulletin of Agricultural Statistics, International Institute of Agriculture, Rome, are in part final returns and in part preliminary data.

The crop was good in nearly all countries and the world's production was the largest on record. Drought threatened the crop in the United States, and in parts of central Mexico corn suffered severely as a result of dry weather wherever irrigation was not practiced. In the United States the season of 1910 was one of the most unusual ever experienced. In the spring the weather was unfavorable for a good preparation of the soil and also for planting. This caused much apprehension on account of a comparatively poor stand which resulted. During the growing season many sections were troubled with severely dry weather which reduced the growth and development of an already late crop. When the rains finally came there was much fear of an early frost, and while temperatures went dangerously low at times in the northern sections of the corn belt during the month of September, this month in general was the most favorable for the ripening of a corn crop that most farmers had ever experienced. The crop had matured by the end of September without serious injury from frost. The fall rains and other weather conditions were so favorable that the corn plant made a most marked and rapid development during the latter part of its growing season. The prospects improved in nearly all important corn States as the crop matured. So far were the early setbacks of the crop discounted that the country produced the largest crop on record and for the first time in its history the production went beyond three billion bushels.

**THE UNITED STATES.** The total production of the United States for the year was estimated at 3,125,713,000 bushels grown on 114,002,000 acres, as against a yield of 2,772,378,000 bushels produced on 108,771,000 acres in 1909. The

acreage of 1910 was also larger than that of any other year. The average yield of 27.4 bushels per acre was the largest since 1906. Based on a farm value of 48.8 cents per bushel on December 1, 1910, the total value of the crop amounted to \$1,523,968,000 as compared with a corresponding bushel value of 59.6 and a total value of \$1,652,822,000 in 1909, the record year in this regard. The yields of the principal corn growing States in 1910 were as follows: Illinois 414,812,000 bushels, Iowa 343,870,000, Missouri 273,900,000, Nebraska 206,400,000, Indiana 201,216,000, Texas 181,280,000, Kansas 169,100,000, Ohio 144,540,000 and Kentucky 105,270,000 bushels. The average yield per acre in these States ranged from 19 bushels in Kansas to 39.3 bushels in Indiana. The best average yield in any group of States was secured in the New England States, where the range was from 40 bushels per acre in Rhode Island to 53.2 bushels in Connecticut, which held the record among all the States. A feature of the year was the increase in the total production of the Southern States. The cotton States showed an increase of 120,000,000 bushels and the total production of 14 Southern States reached nearly a billion bushels, or one-third the crop of the entire country.

**IMPROVEMENTS.** The general interest in a larger yield of better corn was more than upheld in 1910. Corn improvement by breeding and selection was continued by the experiment stations, corn growers' associations, and in individual farmers. The importance of good seed corn was the keynote of all extension work in corn culture and more boys' corn clubs growing corn for premiums were in operation than in any year before. A number of large corn shows were held in different parts of the country during the year.

**CORNEILLE, EUGÈNE.** See **NECROLOGY**.

**CORNELL UNIVERSITY.** An institution of higher learning at Ithaca, N. Y., founded in 1868. During the year 1909-10 there was enrolled a total of 5194 students, an increase of 335 over the total attendance for the preceding year. This figure includes students who registered in the summer session and in the short winter session in agriculture. The students regularly registered in courses leading to a degree numbered 4227, distributed as follows: graduate school, 309; arts and sciences, 970; law, 264; medicine, 201; veterinary medicine, 100; agriculture, 539; civil engineering, 559; mechanical and electrical engineering, 1186. The number of members of the instructing staff during the year was 636. Of these the professors numbered 138, assistant professors, 82, lecturers, 5, instructors, 210, and other assistants on the instructing staff, 201. Among the important changes in the faculty of the University during the year were the following: On June 7, Goldwin Smith (q. v.), the oldest emeritus professor of the University, died at Toronto. In June there retired from active teaching the following professors, who were elected to emeritus professorships: Burt Green Wilder, professor of neurology and vertebrate zoölogy; Waterman Thomas Hewett, professor of German language and literature; and Lucien Augustus Wait, professor of mathematics. A number of promotions to professorships were made among the assistant professorships of the University. The donations for the year aggregated \$228,554. The largest item was \$173,000

from Colonel Payne, toward the maintenance of the Cornell University Medical School of New York City. Gifts made during the year included \$50,000 from Andrew Carnegie, to defray the expenses of an addition to Morse Hall of Chemistry. A bequest of about \$700,000 was left the University under the will of Goldwin Smith to be used for the promotion of liberal studies. The total property of the university, including endowments, real estate, etc., on August 1, 1910, was \$15,178,174. The income for the year from all sources amounted to \$1,657,331. Of this income \$281,687 was received from the State of New York for the regular maintenance of State colleges of agriculture and veterinary medicine. The President is J. G. Schurman, LL.D.

**CORNISH, F. W.** See **LITERATURE, ENGLISH AND AMERICAN, History**.

**CORONATION OATH.** See **GREAT BRITAIN, section, History**.

**CORPORATIONS.** See **TAXATION**.

**CORPORATION TAX.** See **TAXATION**.

**CORRECTIONS.** See **PENOLOGY**.

**CORROSION OF IRON.** See **CHEMISTRY, INDUSTRIAL**.

**CORRUPT PRACTICES.** "Corrupt practices" legislation is coming to receive a larger share of attention. Corrupt practices refer practically to the purchase of votes, and while there are many practices which induce a voter to vote in one way or another, which are improper in themselves, the corrupt practice which the reformer wishes to get at first is the direct purchase of a vote for money or for some valuable consideration. Six years ago, when this subject first came prominently into mind, the condition of things in the State and in the country at large was almost hopeless. Nobody was paying any attention to corrupt practices at all. "Barrel campaigns," "fat-frying" incidents, shaking the "plum tree," "blocks of five," indicated the existence of a great evil all through the United States. There were some very sensational occurrences in 1904, charges and counter-charges, which called public attention sharply to this matter. Then there came the insurance investigation; then came the celebrated letter of Mr. Harriman stating that just before election he and his friends had distributed some \$260,000, which had a "decided influence" on the campaign. Those things sank deep into the popular mind, and then Mr. Perry Belmont printed in the *North American Review* a very interesting and competent article on the subject of the use of money in elections. About the same time the "Association to Prevent Corrupt Practices at Elections" was formed in New York. That Association brought about some statutory changes. It put a real corrupt practices act upon the statute books of the State, and it has since been engaged in an endeavor to enforce the act.

In England the principle of the Corrupt Practice Act places a premium on the enforcement of the act. It does away with the election won by such method. The result is that in a bitterly contested election in England, the parties watch with hawk-like eyes the attitude of their antagonists, and as soon as a man is guilty of any corrupt practices, the opposition party, from no patriotic motives, but from selfish reasons, at once makes an attack, and if successful in proving corrupt practices, the person against whom they are proven, or against whose agent they are proven, is ousted from office and

a new election is held. Not only is the person found guilty ousted from office, but he is ineligible to hold office for five years thereafter. The result of that is that it brings to bear upon this subject a tremendous pressure.

The difficulty of applying that system to this country, in the opinion of Wm. Church Osborn, who has given the subject close attention, lies in the fact that, whereas in England they have but one candidate upon a ticket, we have perhaps 15 or 20, and it would be obviously absurd to attempt to apply to the election of a president a principle which may affect some election district in a city or some rural district in the northern part of the State. "Where there are many candidates upon a ticket it is impossible to apply that principle in its entirety. In the case of a close election," Mr. Osborn is of the opinion, "the loss of the party vote in a given town might be just sufficient to change the result of that election in the county. It strikes me ethically that it would not be an unfair arrangement for the party to lose in its assembly canvass the vote of a town which had been secured by it by corrupt means."

In 1908 the Library of Congress published a "Select List of References on Corrupt Practices in Elections," compiled by Appleton Prentiss Clark Griffin.

**CORY, G. E.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**COSTA RICA.** A Central American republic, between Nicaragua and Panama. Capital, San José.

**AREA, POPULATION, ETC.** The area is stated at 18,691 square miles. The census of December 31, 1909, showed a population of 368,780. The principal towns, with population December 31, 1909, are: San José, 29,660; Heredia, 7511; Cartago, 6018; Alajuela, 5861; Limón, 5269; Puntarenas, 4696. On May 5, 1910, Cartago was practically destroyed by an earthquake. In 1908, immigrants numbered 11,789, and emigrants, 9367; births, 15,308; deaths, 9124. Primary instruction is free and nominally compulsory. At the end of 1908 there were 357 primary schools, with 887 teachers and 27,452 pupils enrolled. In 1910 it was reported that there were about 30,000 pupils in average attendance in the primary and 1200 in the secondary schools, with about 1000 teachers. There are some provisions for higher and professional education. The state religion is Roman Catholicism.

**INDUSTRIES AND COMMERCE.** Agriculture is the principal source of wealth. The principal crops are bananas and coffee. Approximate acreages: Bananas, 91,000; coffee, 74,000; corn, 64,000; sugar-cane, 24,000; beans, 17,600; rice, 6600; cacao, 5500.

Imports and exports in 1908 were valued at \$5,677,353 and \$7,762,728 respectively; in 1909, \$6,109,938 and \$8,176,257. The leading imports are cotton textiles, flour, and machinery. Chief exports in 1909: Bananas, \$4,355,045; coffee, \$2,639,873; gold and silver bullion, \$792,847; cattle hides, \$105,020; rubber, \$71,756; cacao, \$55,765. Annual coffee exports (chiefly to Great Britain): 1905, about 18,000 metric tons; 1906, 14,000; 1907, 17,300; 1908, 8978 (small crop on account of excessive rains); 1909, 12,030. The banana export (chiefly to the United States) advanced rapidly for several years prior to 1908; in 1907 it was 10,165,759 bunches; in 1908, about 10,000,000; in 1909, 9,365,690. Im-

ports from and exports to the principal countries have been (in thousands of dollars):

Countries	Imports		Exports	
	1908	1909	1908	1909
United States.....	2,618	3,376	....	4,802
Great Britain.....	1,282	1,115	....	2,945
Germany .....	647	802	....	167

In 1908 there entered the ports (Limón and Puntarenas) 811 vessels of 1,129,210 tons.

**COMMUNICATIONS.** Railways focussing at Limón, and including branches to the banana region, have a trackage of 336 miles. The main line connects Limón with San José (103 miles). In the summer of 1910 all but 12 miles of a line between San José and Puntarenas was finished. Its completion was expected by the end of the year, when through rail communication would be effected between the waters of the Pacific and Atlantic and the total mileage in the republic would be 405. Telegraph lines, 1335 miles. Post-offices (1908), 197.

**FINANCE.** The monetary standard is gold, and the unit of value the colon, worth 46.5 cents. Revenue and expenditure for fiscal years, in thousand of colones:

	1906	1907	1908	1909
Revenue .....	6,211	7,655	7,916	9,281
Expenditure .....	5,914	7,096	9,191	9,281

Estimated revenue and expenditure for 1910, 7,355,534 and 7,286,473 colones respectively. Revenue is derived principally from customs (4,420,567 colones in 1909) and liquors. The largest expenditures are for finance, public instruction, and military and police. Public debt, December 31, 1909: foreign debt, 25,135,489 colones; internal debt, 10,829,091 colones.

**Government.** The executive authority is vested in a president, who is assisted by a cabinet of four members. The legislative power devolves upon a Chamber of Representatives. Both President and Representatives are elected by indirect vote for four years. On May 8, 1910, Ricardo Jiménez was inaugurated President, succeeding Cleto González Víquez.

The army, in which all citizens are liable to serve, is really a police organization and its total strength is maintained at less than 1000. There was in addition a militia of about 12,000. There is one torpedo boat and one gunboat.

**HISTORY.** On March 20, 1910, Costa Rica and Panama signed a protocol setting forth the basis of fact for the arbitration of their boundary dispute by Chief Justice Fuller. In May Ricardo Jiménez was inaugurated as president. An earthquake at Cartago and the vicinity wrecked a large part of the city, including Mr. Carnegie's Palace of Peace, and killed a large number of people. Some reports estimated the loss of life at 1800, most of them residents of Cartago. Thousands of people were left homeless and destitute. See EARTHQUAKES.

**COSTA RICA-PANAMA ARBITRATION.** See COSTA RICA, INTERNATIONAL ARBITRATION.

**COST OF LIVING.** See AGRICULTURE.

**COTTON.** THE UNITED STATES COTTON CROP. The cotton crop produced in 1910 in money value was one of the greatest in the history of cotton production. The estimated crop for 1910-11, according to the United States Department of Agriculture, was 11,426,000 bales

of 500 pounds each, not including linters. On December 30, 1910, the New York market price of middling uplands was 14.95 cents, and at that average rate the entire crop would be worth more than \$854,000,000. The Secretary of Agriculture estimated the farm value of the entire crop, lint and seed, at over \$900,000,000. According to the ginning reports issued by the U. S. Bureau of the Census, on December 13, 1910, there had been ginned 10,698,482 running bales, counting round bales as half bales and excluding linters. This includes 75,170 bales of Sea Island cotton, distributed as follows: Florida, 25,804; Georgia, 39,717; and South Carolina, 9,649 bales. Of the crop of 1909 of 10,072,137 running bales there had been ginned at the same date in 1909, 92 per cent. of the entire crop, or 9,358,085 running bales.

The estimated crop and amount ginned on December, 13, 1910, by States were as follows:

State	Estimated crop. 500 pound bales	Reported ginned. Running bales.
United States	11,426,000	10,698,428
Alabama	1,174,000	1,129,273
Arkansas	815,000	676,156
Florida	58,000	59,488
Georgia	1,750,000	1,707,310
Louisiana	260,000	234,468
Mississippi	1,160,000	1,066,946
North Carolina	675,000	664,434
Oklahoma	900,000	868,928
South Carolina	1,116,000	1,108,967
Tennessee	305,000	269,657
Texas	3,140,000	2,849,911
All others	73,000	62,944

Among the States grouped as "all others" are Missouri, the crop of which is estimated at 48,000 bales; Virginia, with 13,000 bales; and California, which takes rank as a cotton-producing State, with 12,000 bales, most of which was grown in the Imperial Valley and adjacent regions. The cotton crop of the United States for 1909 was 10,363,240 running bales, which includes 94,566 bales of Sea Island and 314,598 bales of linters.

**SEA ISLAND COTTON.** The Sea Island crop of that year was produced as follows: Florida 28,158 bales, Georgia 52,060 bales, and South Carolina 14,573 bales. The continental area devoted to this kind of cotton does not appear to be extending, in fact 5 less counties were reported as producing Sea Island cotton in 1909 than in 1908. A considerable quantity of Sea Island cotton continues to be grown in the West Indies, and the reports from the British Islands for the year ended June 30, 1910, were valued at \$630,000. The exports of Sea Island cotton from Porto Rico during the same period were valued at \$18,150. Experiments with Sea Island and Caravonica cottons are in progress at the Agricultural Station in Hawaii, where the plants are grown as perennials and pruned every year. It has been found that the prunings root readily, and advantage has been taken of this fact to propagate some especially valuable strains. As a result of these experiments a number of planters have taken up cotton growing, and the first commercial shipment of cotton from Hawaii in half a century was made in December, 1910.

**THE WORLD'S CROP.** The world's production

of cotton for mill consumption in 1909 was over 3,000,000 bales less than that of 1908. The distribution of the supply for 1908 and 1909 was as follows:

Country	1909. 500 pound bales	1908. 500 pound bales.
Total	16,558,000	19,613,000
United States	9,863,000	13,002,000
British India	3,602,000	2,953,000
Egypt	911,000	1,275,000
Russia	720,000	846,000
China	600,000	600,000
Brazil	360,000	425,000
Peru	60,000	57,000
Mexico	125,000	140,000
Turkey	32,000	80,000
Persia	90,000	50,000
Other countries	195,000	185,000

According to U. S. Consular Reports the cotton crop of India for 1910 is estimated at 4,502,000 bales and that of Egypt at over 1,200,000 bales. The Egyptian crop continues to be far from satisfactory, and a commission has been appointed to inquire into the causes for the diminishing output per acre.

**DEVELOPMENT OF COTTON GROWING IN FOREIGN COUNTRIES.** In endeavoring to develop cotton growing in their African colonies, the English, German, and French governments are coöperating with industrial associations to a considerable extent. The British government has granted a subvention to the British Cotton Growing Association of \$50,000 a year for three years, contingent upon the association expending \$750,000 in five years. The German government has given \$100,000 to the Colonial Industrial Association for the development of cotton growing in German colonies. According to a recent German report, there had been expended in the British, German, and French colonies in Africa up to 1909 about \$3,000,000 in developing the cotton industry, and the value of the cotton marketed was but \$3,850,000. The production up to 1908 had been: British colonies 37,120 bales of 500 pounds each, German colonies 8772½ bales, and French colonies 1575½ bales, or a total of 47,468 bales of an average value of 15.6 cents per pound. In 1910 the British Cotton Growing Association up to September had received from West Africa 5469 bales, from Uganda 3000 bales, and from East Africa 1415 bales, and the crop conditions for Rhodesia and Nyassaland were considered very favorable. A recent report from Peru states that about 125,000 acres of irrigated land are devoted to cotton, and the crop of 1910 is estimated at 100,000 bales. About 65 per cent. is the American upland type of cotton, the balance rough Peruvian with a little Sea Island and Egyptian. An experiment station for cotton growing has recently been established in that country. According to Japanese sources there were over 100,000 acres planted to cotton in Korea during the past season. Fairly promising results are reported from experiments in cotton growing in Egyptian Sudan, Transvaal, and Algeria, but in Cape Province and Mozambique the conditions for commercial production of cotton are said to be very unfavorable. Experiments have been made with Egyptian cotton in Palestine and Thessaly, and 80 acres near Jaffa yielded cotton lint and seed that was sold

for \$5647. The quality was said to equal the best Egyptian. In Thessaly 750 acres were planted to Egyptian cotton in 1910.

**EXPORTS AND IMPORTS.** The exports of cotton from the United States for the year ending June 30, 1910, were 6,253,293 bales, valued at \$450,447,802. At the same time cotton valued at \$15,816,138 was imported, and it is reported that short staple cotton was imported from India for consumption in mills in the Southern States. Of the imports, Egypt supplied \$11,483,555, Peru \$1,098,428, and Asiatic countries \$1,108,119 worth of cotton.

**COTTON BY-PRODUCTS.** The so-called by-products of the cotton crop for 1909 were valued at \$105,702,000, which were distributed as follows: Oil \$55,230,000, cotton-seed meal and cake \$35,910,000, hulls \$9,810,000, and linters \$4,770,000. Each ton of cotton seed yields on an average 45 pounds of linters, 40.1 gallons of oil, 811 pounds of meal, and 728 pounds of hulls. The average mill value of cotton seed in 1909 was \$27.70 per ton. The total production of seed was 4,462,000 tons, of which 3,269,000 were manufactured.

**WORK OF THE UNITED STATES DEPARTMENT OF AGRICULTURE.** Considerable work has been done by the Department in the preparation of the types of official grades of white American cotton; 175 sets of nine grades have been prepared, of which 150 will be sold or deposited and the remaining 25 kept in vacuum storage for purposes of comparison. These official standards have been adopted by the New Orleans Cotton Exchange, and there is reason to believe others will soon adopt them. Investigations are in progress on the acclimatization of types of cotton with a view to their boll weevil resistance, the breeding of new varieties, methods of culture, etc. The work begun in California and Arizona with Egyptian and other cottons has progressed so favorably that the commercial growing of cotton has begun in southern California, and the crop estimated at 12,000 bales was produced in 1910. In Arizona 2200 pounds of Egyptian seed cotton per acre were grown on well irrigated land. Methods have been discovered for the elimination of the wide variation in the Egyptian cotton when grown in the Southwest. The dissemination of wilt-resistant upland cottons is being continued and investigations are in progress in which wilt resistance is being adapted to boll weevil conditions. The boll weevil investigations are being continued, and in 1909 the line of advance of this pest was about 10 miles in Oklahoma and nearly 120 miles in southern Mississippi. In 1910 it had crossed the State of Mississippi and entered southwestern Alabama and advanced north to the lower border of Coahoma County, Miss. The advance has been at the average rate of 27,000 square miles per annum since 1904. Practically all Louisiana is now infested, and the crop in that State has fallen off nearly 50 per cent. since 1908. The value of cultural methods in combating the boll weevil has been fully demonstrated, and the chain drag by which the fallen bolls are drawn to the centre between the rows and there exposed to light and heat seems to be very efficient. The dusting of the plants with arsenate of lead has also proved economically practicable as a means for lessening the loss due to the weevil. The damage done by the boll weevil to the crop of 1909 has been estimated at 1,267,000 bales.

Among the happenings during the year that are of general interest was the successful test of a mechanical cotton picker. The machine is operated by a gasoline motor and is said to have thoroughly done its work at a cost far below that of hand picking, without injury to the plant or to the unopened bolls. At the International Conference on Tropical Agriculture, held in Brussels in 1910, the principal topic discussed was cotton, practically every country in which cotton is produced sending reports.

**COTTON BILLS OF LADING.** See **BANKS.**

**COTTON BY-PRODUCTS.** See **COTTON.**

**COTTON CORNER.** See **TRUSTS.**

**COUNCIL, NATIONAL.** See **CONGREGATIONALISTS.**

**COUNTRY LIFE COMMISSION.** See **AGRICULTURE.**

**COURT DECISIONS AFFECTING RAILWAYS.** See **RAILWAYS.**

**COURT OF ARBITRATION.** See **ARBITRATION, INTERNATIONAL.**

**COWS.** See **STOCK RAISING; DAIRYING.**

**COX, MARIA.** See **NECROLOGY.**

**COX, J. G. S.** See **LITERATURE, ENGLISH AND AMERICAN, Biography.**

**CRAIG, JOHN A.** See **NECROLOGY.**

**CRAIG COLONY FOR EPILEPTICS.** See **EPILEPSY.**

**CRANE, JAMES.** See **NECROLOGY.**

**CRANBROOK,** Earl of. See **LITERATURE, ENGLISH AND AMERICAN, Biography.**

**CRAWFORD, R.** See **LITERATURE, ENGLISH AND AMERICAN, Biography.**

**CREMATION OF GARBAGE.** See **GARBAGE DISPOSAL.**

**CRETE.** A Mediterranean island south of Greece; an autonomous state subject to the suzerainty of Turkey. Area (estimate), 3327 square miles. Population (1900), 310,185 (Christians, 269,848; Mussulmans, 33,496; Jews, 728). Canea, the capital, had (1900) 24,537 inhabitants; Candia, 22,774; Rethymo, 9311. Primary education (nominally compulsory) is supplied in 621 Christian (30,149 pupils) and 19 Mohammedan schools (1957 pupils). Secondary schools (Christian), 29 (4174 pupils). Greek is the language and the Greek Orthodox the religion of the majority of the population. Agriculture is the principal occupation of the people, and olive oil (used in the manufacture of soap) the chief product; average annual yield, 33,000 tons. Soap factories, 18; annual output, 3,155,800 kilograms, valued at about 17,600,000 drachmas. Other products are Carob-beans (1,560,000 drachmas), valonia, fruits, wine (1,110,000 dr.), hides, leather, cheese and silk. Livestock: Sheep, 400,000; goats, 120,000; horses, 10,000; asses, 40,000; oxen, 70,000; swine, 20,000. The commerce is seen below in thousands of drachmas (1 drachma = 19.3 cents):

	1905	1906	1907	1908
Imports	15,185	19,270	18,752	21,071
Exports	11,224	17,391	11,967	18,372

The trade is largely with Greece. Vessels entered and cleared (1907), 2679, of 1,247,223 tons. Telegraph lines, 228 miles; post-offices (Cretan), 26. (Crete belongs to the Postal Union.)

The financial condition of the country is seen below (thousands of drachmas):

	1904-5	1905-6	1906-7	1907-8
Revenue	4,792	5,628	5,026	5,930
Expenditure	4,072	4,440	4,379	5,906

Revenue and expenditure (estimate) for 1908-9, 5,930,332 and 5,905,980 drachmas respectively. Public debt (1907), 5,317,226 drachmas. The Bank of Crete (the exclusive bank of issue) is capitalized at 5,000,000 (gold) drachmas. Crete is administered by a High Commissioner of the Powers (Great Britain, Russia, France, Italy) proposed by the King of the Hellenes, and is subject to the Porte, though paying no tribute. Greek officers have the direction of the gendarmerie and militia.

**HISTORY.** The movement in Crete for union with Greece continued to add to the perplexities of the Eastern question in 1910. It will be remembered that Crete declared herself a dependency of Greece on the same day that Austria-Hungary announced the annexation of Bosnia and Herzegovina, but was checked by the action of the four protecting Powers, who declared that no negotiations would be undertaken with Turkey on that subject unless order was maintained in the island. In 1909 the Powers withdrew their warships from Cretan waters. This tended to give free rein to the agitation for Cretan autonomy under Greek rule.

The closing session of the Cretan Chamber on December 31, 1909, authorized the new executive government to apply in Crete such laws of Greece as seemed advisable. The movement for annexation to Greece continued and caused much ill feeling in Turkey and anxiety to the protecting Powers. The decision of the Greek government to convoke a National Assembly stimulated the annexation agitation in Crete. (See GREECE.) On January 6 the Ottoman government sent an identical note to the Powers protesting against the alleged decision of the Cretan government requiring officials to take the oath of allegiance to King George of Greece and the courts to apply the Greek code. Great Britain and Russia in reply expressed regret at the folly of the Cretans and said that measures had been taken to prevent further acts of the kind, and especially the sending of Cretan delegates to Athens. Turkey gave warning to the Powers that if the Cretans chose deputies at the next Greek elections, Turkey would defend her sovereign rights. On February 12 the four protecting Powers notified the Cretan Executive Committee that they would not permit Cretan participation in the Greek elections. Nevertheless the majority of the Cretan Assembly decided in May to exclude Moslem deputies who had refused to take the oath of allegiance to King George. Turkey at once protested to the Powers. The Consuls-General of the four protecting Powers warned the Cretan authorities that such exclusion would have serious consequences. In Turkey popular sentiment was greatly aroused against Great Britain and Greece, and to a lesser extent, Russia, for their alleged attitude toward the Cretan question, and members of the Ulama were threatening a holy war unless the situation altered. A boycott of Greek goods was started at Constantinople and spread rapidly. Many public meetings were held in which the conduct of the Greeks was violently denounced.

Early in June notes of warning were ad-

dressed by the Powers to the Cretan Executive Committee, saying that the Powers would not permit Cretan Moslem functionaries to be debarred from the exercise of their office or to be deprived of their salaries, and another note followed declaring that if the Assembly should not receive at its next meeting the Mussulman deputies without demanding that they take an oath contrary to their sentiments the Powers would take the necessary steps to regulate the situation in Crete. On June 14, Sir Edward Grey declared that it would be necessary to prevent the Cretans from making any changes that might lead to a breach of the peace in the Near East.

The British government finally suggested that each of the four Powers should send an additional warship to Cretan waters. On June 17 the Russian Foreign Minister dispatched a note to the three other Powers accepting the British proposal and further suggesting that Crete should be reoccupied. The Powers in reply accepted in principle the proposal to reoccupy Crete if there should be further delay in carrying out their demands. It was reported later, however, that the Cretans would obey the command of the Powers and admit Moslem deputies to their Assembly without requiring the oath of allegiance to the King of Greece.

Early in July four cruisers, one from each of the Powers, arrived at Canea. The situation was critical, as the Opposition continued to refuse admission to Mussulman deputies unless they took the oath of allegiance to the King of Greece. Early in July the Porte, in an official note to the Powers, asked when they considered it the proper time to solve definitely the Cretan question.

The four protecting Powers delivered to the Cretan government an ultimatum through their consuls on July 8, declaring that they would land troops and seize the customs if the Moslem deputies were required to take the oath of allegiance to King George, or if the present Moslem officials were deprived of their salaries for refusal to take the oath. On the following day the admission of the Moslem deputies was passed by the Assembly, and the Powers at once withdrew their warships. Fresh trouble arose toward the end of August when M. Venezelos, the Cretan politician who had visited Athens and played a leading part in the movement for a Greek National Assembly, was returned as a member, along with three other Cretan delegates, in the elections for that body. The Ottoman government protested against their admission.

The Greek government being asked by the representatives of Russia and Great Britain to use its authority to cause the withdrawal of the Cretan delegates to the New National Assembly, replied that it would endeavor to do so.

At the end of November the Porte called the attention of the four protecting Powers to fresh encroachments on Turkish sovereign rights on the part of the Cretans in opening the Cretan National Assembly in the name of the King of Greece and in affirming the convention of Crete with Greece.

**CRETE, EXCAVATIONS IN.** See **ARCHÆOLOGY.**

**CRICKET.** The Staten Island Cricket Club won the championship of the New York and New Jersey Cricket Association without being defeated in a single match. This club also was easily victorious over the Belmont Cricket Club

of Philadelphia and drew with the Ottawa Cricket Club. The Metropolitan District Cricket League series both in Class A and Class B was won by the Brooklyn Cricket Club. In the county championships in England for the second year in succession the Kent men were the victors, winning 19 matches, losing 3 and drawing 3.

**CRIMINAL LAW.** See **PENOLOGY**.

**CRITICISM.** See **LITERATURE, ENGLISH AND AMERICAN; FRENCH LITERATURE; GERMAN LITERATURE.**

**CROATIA.** See **AUSTRIA-HUNGARY, History.**

**CROCKER CANCER RESEARCH FUND.** See **COLUMBIA UNIVERSITY.**

**CROFFUT, W. A.** See **LITERATURE, ENGLISH AND AMERICAN, History.**

**CROMER, EARL OF.** See **LITERATURE, ENGLISH AND AMERICAN, Political and Social Science.**

**CROPS.** See **AGRICULTURE** and separate articles on crops.

**CROSS COUNTRY RUNNING AND MARATHONS.** Long distance running in 1910 again proved a popular sport for hundreds of athletic clubs, colleges, and schools throughout the United States. In Canada and England, too, the interest shown in distance events both by athletes and the public was very great. The Senior Metropolitan cross country championship run, which annually attracts a large number of entrants from clubs in the vicinity of New York City, was held in Paterson, N. J., in May. W. J. Kramer of the Acorn A. A. who carried off the junior championship in 1909 was the individual winner, his time for the six miles (about) being 39 minutes 34 seconds. Harry McGinn of the New York A. C. finished second, T. Dwyer of the Mohawk A. C. third and W. Bailey of the New York A. C. fourth. The team scores were: Mohawk A. C., 32; New York A. C., 43; Acorn A. A., 67; and Mott Haven A. C., 77. The junior championships were held at New York, the individual winner being Joseph Gilbert of the Mohawk A. C., who ran the 5¼ miles in 26 minutes 51 seconds. Harry McGinn of the New York A. C., who finished second in the senior race, won the same place in the junior.

The intercollegiate cross country championships held at Princeton on November 12 for the third successive year were won by Cornell, five of the Ithaca team finishing before the first of the Dartmouth, Princeton, or Columbia runners crossed the line. Cornell's team score was 37 as against 70 for Harvard which captured second place. The score and order at the finish of the other colleges entered were: Yale, 73; Michigan, 86; Massachusetts Institute of Technology, 120; Princeton, 171; Pennsylvania, 193; Dartmouth, 211; Columbia, 230; and College of the City of New York, 308. J. P. Jones of Cornell was the individual champion, his closest rival being T. S. Berna, one of his team-mates, who won the race in 1909 and who holds the 2-mile intercollegiate record. Among the amateur Marathon runs in 1910, the most important were those at St. Louis, under the auspices of the Missouri A. C., which was won by J. J. Sullivan of Chicago; at Hamilton, Ontario, where the winner was M. J. Ryan of the Irish American A. C. of New York, and the Vendome Club's Marathon at Newark in which E. H. White of Staten Island was the victor.

Many professional Marathons took place in the larger cities of the United States, but they

failed to arouse the enthusiasm on the part of the public that they did in the preceding year. Several of these events, because of this fact, brought financial losses to the promoters. The racing itself was in most instances high class. Both the indoor and outdoor records for the event were broken in the United States, and in England too the indoor record fell. Three international Marathons were run during the year, two in New York and one in London, England. The first took place in the 69th regiment armory in New York on March 1 and was won by T. Johansen of Sweden, whose time, 2 hours 36 minutes 55 1-5 seconds, established a new indoor record for the United States. J. Crowley of New York finished second. On April 2 an outdoor Marathon race was held at the Polo grounds and again a Swedish runner carried off the laurels. The winner was G. Ljungstrom, who broke all records by completing the course in 2 hours 34 minutes 8 2-5 seconds. J. Svanberg, another Swede, it is said, ran the distance at Canobie Park Lake, N. H., in 2 hours 29 minutes 40 seconds, but the accuracy of the time was questioned. The international Marathon held in London was won by L. Bouchard of France in the record time of 2 hours 36 minutes 18 seconds.

**CROTALIN.** See **EPILEPSY.**

**CROWNINSHIELD, CASPER S.** See **NECROLOGY.**

**CROZER, SAMUEL A.** See **NECROLOGY.**

**CRUELTY TO ANIMALS, AMERICAN SOCIETY FOR THE PREVENTION OF.** An institution whose object is sufficiently indicated by its title, founded in 1886. In 1910 there were received by the society 10,157 complaints of alleged cruelty, resulting in 2091 arrests and prosecutions; 6393 animals were suspended from labor, 2481 horses, mules, and other large animals were humanely destroyed; 318,615 small animals, homeless or disabled past recovery, were also destroyed and 1168 disabled horses and other large animals were removed in ambulances. The excess of expenditures over incomes was \$22,656. The society received in bequests and from members' dues, donations, and other sources \$117,110. The president is Alfred Wagstaff and the secretary, Richard Welling.

**CRUELTY TO CHILDREN, NEW YORK SOCIETY FOR THE PREVENTION OF.** A society founded in New York City in 1874 for the purpose indicated by its name. Its authority is given under the laws of New York State. During 1910 it received 18,541 complaints, and prosecuted 7947 offenders, of whom 6533 were convicted. There were rescued from destitute and vicious surroundings 7817 children, and 7899 children received care, food and clothing at the building of the society. The society investigates all complaints of neglect of children and brings action against the offenders. A school of instruction for prospective workers is conducted in the building of the society at 284 Fourth Avenue, New York City. The president in 1910 was John D. Lindsay, and the secretary and superintendent was Thomas D. Walsh.

**CRUZ, ANIBAL.** A Chilean diplomat, Minister to the United States, died December 18, 1910. He was born in 1865 and was regarded as one of the foremost men in public affairs in Chile. He had been a member of the Chilean Congress and Minister of War of that country. He was appointed Minister to the United States in 1907. In April, 1910, he acted as chairman of the

Chilean delegation at the Pan-American Conference at Buenos Ayres.

**CUBA.** An island republic of the West Indies. The capital is Havana.

**AREA, POPULATION, ETC.** The area of the six provinces constituting the republic is 44,164 square miles, including the Isle of Pines and small islands and keys with an approximate area of 1350 square miles. The population in 1887 was 1,631,687; in 1899, 1,572,797; in 1907 (according to the census of Sept. 30), 2,048,980. The death-rate per 1000 decreased from 17.35 in 1900 to 12.69 in 1909. Immigration in 1909, 31,286 (24,662 Spanish). The principal cities, with populations according to the 1907 census and estimates published in 1910, are: Havana, 297,159 and 302,526; Santiago, 45,470 and 53,614; Matanzas, 36,009 and 64,385; Cienfuegos, 30,100 and 70,416; Camagüey, 29,616 and 66,460; Cardenas, 24,280 and 28,576; Sancti Spiritus, 17,440 and 36,572; Santa Clara, 16,702 and 46,620. The above mentioned estimates give for Manzanillo, 54,900; Colon, 52,006; Holguin, 50,224; Pinar del Rio, 50,071; Guantnamo, 43,300; Guines, 32,216.

The primary and secondary school systems were reorganized under American rule. Primary instruction is nominally compulsory. The reported number of primary schools at the end of 1909 was 2171, with 3613 teachers, an enrollment of 132,740 pupils, and an average attendance of 98,489. There are various schools for secondary instruction, and higher and professional education is provided by the University of Havana, which has about 600 students.

**INDUSTRIES.** The staple agricultural products are sugar and tobacco. Other crops are cacao, potatoes and other vegetables, cereals, and fruits, especially pineapples. The production of raw sugar has been as follows: 1889-90, 632,268 tons; 1894-5, 1,004,264 tons; 1896-7, 212,051 tons; 1899-1900, 283,051 tons; 1904-5, 1,183,347 tons; 1906-7, 1,441,910 tons; 1907-8, 969,175 tons; 1908-9, 1,521,818 tons; 1909-10, 1,808,221 tons, the largest crop on record. The last two crops were valued at \$85,808,800 and \$112,552,700 respectively. About one-third of the entire yield is in the province of Santa Clara. From sugar cane are also produced large quantities of molasses, aguardiente, and alcohol. The tobacco yield in 1907 amounted to 440,745 bales (of about 120 pounds each); in 1908, 563,059; in 1909, 494,358. Livestock, June 30, 1910; 3,098,179 cattle, 572,901 horses, 59,994 mules, 2414 asses. The mineral wealth of the country is considerable, especially in Oriente, including iron, copper, manganese, lead, zinc, gold, asphalt and salt. The manufacture of cigars is a very important industry.

**COMMERCE.** Imports and exports for fiscal years ended June 30 have been valued as follows:

Imports				
	1908	1909	1910	
Mdse. ....	\$ 86,368,767	\$ 83,856,835	\$ 98,239,539	
Specie .....	1,150,376	2,934,536	5,216,588	
Total .....	87,519,143	86,791,371	103,456,127	
Exports				
Mdse. ....	98,849,091	115,637,321	144,036,697	
Specie .....	4,245,769	1,926,546	2,786	
Total .....	103,094,860	117,563,867	144,039,483	

Leading imports in the fiscal year 1909: Cereals, \$11,640,991; meats, \$9,627,128; cotton and its manufactures, \$8,023,562; iron and steel, \$4,523,952; machinery, \$4,108,560; manufactures, \$3,724,147; food substances (not otherwise classified), \$3,660,606; vegetables, \$3,568,974; vegetable fibres, \$2,837,486; wood and its manufactures, \$2,042,161. Leading exports, fiscal year 1909: Sugar (crude and refined), \$70,996,726; tobacco (unmanufactured), \$20,072,681; tobacco (manufactured), \$12,938,624; copper and manganese, \$2,543,068; fruits, \$2,326,854; woods, \$1,436,045; sirups, \$1,196,899; skins and hides, \$1,030,811.

Trade by countries in fiscal year 1909: United States, imports from and exports to, \$42,612,242 and \$101,457,343 respectively; Great Britain, \$10,639,462 and \$4,959,040; France, \$7,576,617 and \$1,296,447; Spain, \$7,390,782 and \$1,460,445; Germany, \$6,350,534 and \$4,484,290; other American countries, \$7,325,229 and \$2,430,469; other European countries, \$3,336,100 and \$1,003,857; all other countries, \$1,560,405 and \$471,976; total imports, \$86,791,371, and total exports, \$117,563,867.

The great bulk of all articles exported, as classified above, went to the United States, with the exception of manufactured tobacco; of this, Great Britain received a value of \$4,166,211, the United States \$3,767,037, Germany \$1,507,392. The number of cigars exported was 181,294,502, as against 118,846,784 in 1908. The sugar export was 1,431,538 tons, all of which except about 10,000 tons went to the United States. Pineapple export (mostly to the United States), 1,263,466 crates of 80 pounds each.

**COMMUNICATIONS.** At the beginning of 1910, length of railways, 2329.8 miles; telegraph lines, 5065 miles; telegraph offices, 171; post-offices, 472. On Oct. 4, 1910, a railway was opened between Santiago and Bayamo. Several new railways and extensions are projected.

**FINANCE.** When the American provisional government ceased, Jan. 28, 1909, there was in the treasury \$2,658,829. Obligations relating to the month of January reduced this amount by \$2,023,775, leaving a balance of \$661,453. There were, however, various other obligations, so that, according to the message of President Gomez (April 4, 1910) there was an actual deficit of \$11,259,371 on Jan. 28, 1909. Up to Mar. 31, 1910, this deficit had been reduced by \$3,373,029, and there was \$1,457,515 in the treasury. Estimated revenue and expenditure for the year 1909-10, \$33,825,499 and \$31,070,412 respectively; for 1910-11, \$34,779,680 and \$30,996,600. The estimated revenue from customs in 1910-11 is \$24,731,580, and from the national lottery, \$3,000,000. Funded debt (1909), \$48,296,585.

**ARMY.** The Cuban Permanent army which had been organized and trained by officers detailed from the United States Army was organized as a brigade of two regiments of infantry. Each of these battalions, and an artillery division consisting of two field batteries, four mountain batteries, a modern gun corps of four companies, and a corps of coast artillery. There was also a general staff and the strength of the entire organization was estimated at about 5000.

**NAVY.** By an act of the Cuban Congress of July 3, 1910, the revenue-cutter service became the navy. Towards the end of 1910, it was announced that contracts had been awarded for





REVISED, 1910



११०६

the construction of two cruisers in the United States and two small cruisers in England.

**GOVERNMENT.** The executive authority is vested in a president, who is elected for four years and is assisted by a cabinet appointed by himself and responsible to Congress. The legislative power devolves upon a Congress of two houses, the Senate (24 members) and the House of Representatives (64). The President in 1910 was Gen. José Miguel Gomez, who was inaugurated Jan. 28, 1909; Vice-President, Alfredo Zayas. Each of the six provinces is administered by an elective governor.

**HISTORY.** On Feb. 3, two editors were sentenced to imprisonment for libeling President Gomez. Señor Morna, the first negro to hold a Cabinet office, was installed on April 16. An uprising occurred near El Caney in July, but was of slight importance and soon put down by the Rural Guards, who captured the leader and two companions. At a convention of the Liberal party on August 1, the Secretary of the Treasury, Villegas, became involved in a quarrel and the President subsequently ruling that no Cabinet Minister should henceforth attend political meetings, he resigned. Congress adjourned in July. The President in his message urged a campaign against tuberculosis. As to the government profits from the lottery, he recommended that \$1,346,000 be applied to the building of new revenue cutters and a Presidential palace. A bill for exchanging the government's arsenal property on the river front for a railway terminal in the heart of the city passed both Houses in spite of the sharp criticism of the Havana press and the disapproval of it by the United States government. Charges of bribery were made in connection with it. A project for a gambling resort on the plan of Monte Carlo was passed by the House, in spite of much adverse comment in the press, but was deferred in the Senate until the next meeting of Congress. The first congressional elections under the new régime were held in November, the terms of half the members, both in the Senate and in the House, having expired. The Liberal party was divided in its counsels. The ultra-radical or Young Cuba faction, demanded the prohibition of religious orders, suppression of trusts, and the prevention of foreign corporations from holding real estate in Cuba, while the other group had as the chief plank in its platform the abolition of the Platt amendment to the Constitution. The negroes also showed themselves discontented and endeavored to found a party of their own but did not succeed in effecting an organization. The elections were conducted without disorder. The Liberals were generally victorious although the strength of the Conservative party increased. On the opening of Congress the President urged tariff revision in the interest of certain Cuban articles of manufacture, which needed better protection and asked that a new Palace of Justice be built and public libraries established in the chief cities. The Senate rejected the bill for a gambling resort. An attempt had been made to assassinate General Guerra, Commander of the Cuban army. He attributed the crime to a police lieutenant, who could not be found. At the same time charges were brought by Vice-President Zayas and Mr. Steinhardt, formerly United States Consul, that a plot had been made to assassinate them, but the Supreme Court before

which they had been laid, refused to consider them. The subject was much discussed in the press. There was an attempt made to associate the assassination with a bill before Congress providing that the head of the army should not be removed except for cause, and it was declared that the bill was not approved by the Commander of the Rural Guard, General Montecagudo.

**CUCKOO.** See ORNITHOLOGY.

**CUDAHY, MICHAEL.** An American merchant, died Nov. 27, 1910. He was born in Callan, County Kilkenny, Ireland, in 1841. In 1849 he came with his parents to the United States, settling in Milwaukee. He became an employe in a packing house and gradually rose to be manager, and partner in Armour & Company from 1873 to 1890. Engaging in business independently, he became president of the Cudahy Packing Company of Omaha, Sioux City and Los Angeles. He was president of the American Transportation and Trading Company and was connected with other financial enterprises.

**CUMBERLAND PRESBYTERIAN CHURCH.** A religious denomination organized in 1810 as the result of a revival in "the Cumberland country" in Kentucky and Tennessee, conducted by Rev. James McCreedy. The denomination was founded as the result of objections on the part of the regular Presbyterian church in Kentucky to the admission to the ministry of men who were not up to the usual literary and theological standard, and to certain reservations in the acceptance of the Westminster Confession, dealing with the doctrine of predestination. Nearly all the churches of the Cumberland country adhered to the new presbytery, which was constituted February 4, 1810. The denomination became in the following years of considerable strength in the South. Proposals were made at various times for union with other churches, and in 1903 the union with the Presbyterian Church in the United States of America was proposed. The general assemblies of both churches appointed committees on fraternity and union. These held a joint meeting and formulated a basis of union, which was approved by the general assemblies in 1904 and was ratified by the presbyteries of each body in the following year, when the general assemblies took action for the organic union of the two churches. Meanwhile considerable opposition had arisen in the Cumberland Church and a protest had been filed against the constitutionality of the assembly's action. The civil court, to which the matter was referred, held the action to be legal, and when it became evident that it was to be carried through, another movement was started in the Cumberland Church to "enjoin the general assembly from taking the final steps to merge, unite or consolidate the Cumberland Presbyterian Church with the Presbyterian Church of the United States of America." The court refused the injunction and the general assembly by a vote of 165 to 91, approved the report and "adjourned sine die as a separate assembly, to meet in and as a part of the One Hundred and Nineteenth General Assembly of the Presbyterian Church of the United States of America." The opposition then filed a protest and determined to "continue and perpetuate the General Assembly of the Cumberland Presbyterian Church as same was constituted and

organized on May 17, 1906" and declared itself "to be the Cumberland Presbyterian Church, the repository of its established faith, the owners of its property and the protectors of its trusts." It held that all offices had been vacated, appointed men to fill the vacancies in the boards, rescinded the action and announcements of the general assembly and adjourned to meet in Dickson county, Tennessee. Suits were brought in a number of courts in regard to church property during the years following with varying results. The courts up to November 1, 1910, had made decisions as follows: The Supreme courts of Georgia, Kentucky, Texas, Arkansas, Illinois, Indiana and California favored the union in their decisions. The Appellate court of Texas and Indiana and the Supreme courts of Tennessee and Missouri in their decisions were unfavorable to the union. Most of the courts upholding the union have done so on the ground that a civil court cannot review the decisions of an ecclesiastical court. On the other hand, the two appellate courts and the two supreme courts unfavorable to the union declared it null and void, and that a union was impossible on account of doctrinal differences and on account of a want of constitutional authority. The most important result of these suits, from the standpoint of the Cumberland Presbyterian Church, was the possession gained of the Cumberland Presbyterian Publishing House at Nashville, Tennessee, valued at \$200,000, which was surrendered to the Cumberland Board of Publication in February, 1910. The last General Assembly of the Cumberland Presbyterian Church convened at Dickson, Tenn. May 19th to 24th, 1910. According to the United States census of 1906, published in 1910, the total number of communicants in March, 1906, was 195,770, with 2474 churches and 1514 ministers. The present membership

made up of the islands of Curaçao (210 square miles; 30,883 inhabitants), Bonaire or Buen Ayre (95; 6233), Aruba (69; 8555), St. Martin (17; 3185), St. Eustache (7; 1283), and Saba (5; 1949). The population is that given Dec. 31, 1907. Of St. Martin, only the southern part belongs to the Dutch colony, the northern to France. Capital, Willemstad (about 14,000 inhabitants). Corn, beans, pulse, cattle, salt, and phosphate of lime are the main products. Imports and exports (1907), 3,750,863 and 1,306,509 guilders respectively (1 guilder=40.2 cents). Vessels entered, 3338, of 634,722 tons. Revenue and expenditure (estimate 1910), 656,205 and 966,995 guilders respectively, the difference being made up by the home government. The colony is administered by a governor (1910, Dr. Th. I. A. Nuyens).

**CURIE, MADAME.** See **CHEMISTRY.**

**CURRAN, PETER FRANCIS.** See **NECROLOGY.**

**CURRENCY.** The total stock of money in the United States, June 30, 1910, was \$3,419,500,000. Of this 927 per cent. was held in the Treasury as assets; 41.37 per cent. was in banks; and 49.36 per cent. in circulation among the people. Excluding the \$317,200,000 in the Treasury the aggregate circulation was \$34.33 per capita. This compared with \$34.93 in 1909; \$31.08 in 1905; and \$26.94 in 1900. The total stock of money in banks was \$1,423,808,000, of which sixty per cent. was held by national banks. The following table shows the total stock of money, the amount held in the Treasury as assets, and the amount in circulation, November 1, 1910. The gold coin and bullion in the Treasury includes the reserve held to redeem greenbacks, the amount represented by the gold certificates, both within and without the Treasury, and the gold available for general government purposes. The silver certificates are set over against the silver dollars.

	General Stock of money.	Amount held in Treasury as Government Assets.	Amount in Circulation.
Gold coin (including bullion in Treasury).....	\$1,692,759,176	\$197,964,562	\$594,934,945
Gold Certificates .....		63,059,500	836,800,169
Standard Silver Dollars .....	564,059,508	633,229	76,058,279
Silver Certificates .....		5,691,589	483,376,411
Subsidiary Silver .....	156,146,796	16,995,517	139,151,279
Treasury Notes of 1890 .....	3,518,000	7,442	8,510,568
United States Notes.....	246,681,016	5,496,564	341,184,452
National Bank Notes.....	724,874,308	18,805,902	706,068,406
<b>Total.....</b>	<b>\$3,488,738,804</b>	<b>\$308,654,805</b>	<b>\$3,180,084,499</b>

of the denomination is uncertain. It is claimed that there are 100,000 communicants and 600 pastors, who remained in adherence to the Cumberland Presbyterian Church.

**CUMMINGS, URIAH.** An American engineer, died November 11, 1910. He was born at Akron, N. Y., in 1833. For many years he had charge of the investigations conducted by the United States on cement and concrete and was considered an authority on these subjects. He was also the inventor of over thirty successful mechanical devices and was often a contributor of articles on scientific subjects to magazines. Aside from his technical works, he wrote tales, both historical and fanciful, dealing chiefly with the Indians of western New York. He was an honorary member of the tribe of Tonawanda Indians who live upon the government reservation near Akron, N. Y.

**CUMMINS, SENATOR.** See **UNITED STATES, section Congress.**

**CURAÇAO.** A Dutch West Indian colony

The total amount of money in 23,095 banks June 30, 1910, was \$1,423,808,000, of which slightly more than 60 per cent. was held by the 7,145 national banks. All banks held \$690,683,000 in gold and gold certificates, of which amount 60 per cent. was in national banks. These latter held three-fourths of the \$236,080,000 legal tender notes (greenbacks) and 70 per cent. of the \$178,002,000 silver certificates held by all banks but only two-fifths of the \$108,652,000 national bank notes so held.

Under the provisions of the Aldrich-Vreeland Emergency Currency Act of 1907 the only currency association formed previous to 1910 was that for the District of Columbia. The reasons given for this were a feeling of dissatisfaction with the law and the absence of need for such associations. But early in the summer the Secretary of the Treasury took active steps to bring more associations into existence. Though there was nothing in the existing financial conditions to require this step, it was deemed ad-



**MME. CURIE**  
**(MARIE SKŁODOWSKA)**

111

visable as a measure of safety. Associations were formed for New York City and Philadelphia in July; for the State of Louisiana, the State of Georgia, and Boston in August; for St. Louis and Detroit in September; and for Chicago and the Twin Cities in October. These associations are expected to continue until the Act expires in 1914. On September 16, Secretary MacVeagh promulgated certain rulings regarding the withdrawal of a bank from an association and the redemption fund and the security for additional circulation.

For discussion of currency reform see CENTRAL BANK. See also articles on the various kinds of banks, and MONETARY COMMISSION, NATIONAL.

**CURRENCY ASSOCIATION.** See CURRENCY.

**CURTIS, NEWTON MARTIN.** An American soldier, died January 8, 1910. He was born in De Peyster, New York, in 1835, and attended Gouverneur Wesleyan Seminary in 1854-55. From 1857 to 1861 he held office as postmaster in his native town. He became a captain of the 16th New York infantry in the latter year and rose through successive ranks to brevet brigadier-general in 1864. This distinction he received for distinguished service near New Market. He was made major-general of volunteers in 1865 for gallant and meritorious service at the capture of Ft. Fisher. He received a medal of honor in 1891 for gallantry in this action. He was honorably mustered out of service in 1866. After serving as United States Collector of Customs and special agent of United States Treasury from 1867 to 1880 he was elected a member of the New York Legislature, serving from 1884 to 1890; he was member of Congress in 1891-93 and 1893-97, and was president of the Society of the Army of the Potomac in 1907-8. He wrote *From Bull Run to Chancellorsville* (1909) and lectured on subjects dealing with the civil war.

**CURTISS, GLENN H.** See AERONAUTICS.

**CUSTOMS.** See UNITED STATES, also paragraphs on the subject in articles on countries and States.

**CUSTOMS COURT.** See UNITED STATES, section *Judiciary*.

**CUSTOMS FRAUDS.** See UNITED STATES, section *Customs*.

**CUTTER, BENJAMIN.** An American musical educator and author, died May 10, 1910. He was born in Woburn, Mass., in 1857, studied the violin under various masters in Boston and Stuttgart, and in 1882 he began teaching violin harmony and harmony analysis at the New England Conservatory of Music. He was a member of the Boston Symphony Orchestra under Henschel and Gericke. Among his published compositions are *Mass in D*, chamber music and religious choral music. He was the author of *Exercises in Harmony, Harmonic Analysis and How to Study Kreutzer*.

**CYANAMIDE.** See FERTILIZERS.

**CYCLING.** The professional sprint championship in 1910 again went to F. L. Kramer, who scored a total of 52 points. J. A. Folger ranked second, with 30 points, and P. O. Sullivan Hehir third, with 18 points. E. L. Collins won the professional paced championship, scoring 156 points, as against 105 for George Wiley. J. F. Moran, who finished second the year before, had a total of 49 points. The amateur champion was Frank Blatz, who rolled up a

total of 20 points. Chester A. Smith won second place, with 12 points. The 100-kilometre world's professional paced championships held at Brussels, Belgium, was won for the second successive year by Georges Parent. His time was 1 hour 22 minutes and 33 4-5 seconds. G. Friel was the victor in the 1000-metre world's professional contest. The amateur champion in the 100-kilometre event was H. Hens, whose time was only a few seconds slower than that of Parent, the professional champion. W. J. Bailey won the 1000-metre amateur championship, his time being 1 minute 45 2-5 seconds. In an international 2-men-team race ridden at Berlin Walter Rutt of Germany and J. Clarke of Australia were the victors, covering 2332 1/4 miles. Two teams tied for second place. They were made up of R. Walthour of the United States and Johann Stohl of Holland and Berthiet and Brocco, both of France.

The annual international six-day race held at Madison Square Garden in December again attracted thousands of spectators. At the end of the grind four teams were tied for first place and the usual mile event was ridden to place the teams. This was won by less than a wheel's length by Eddie Root, who with J. F. Moran formed the New York-Chelsea team. The other teams and their order of finish follow: Rutt and Clarke, Fogler and Hill, Hehir and Goulett, Mitten and Thomas, West and Demara, and Cameron and Halstead. The distance covered by the leaders was 2545 miles 3 laps, more than 100 miles less than that covered the preceding year and nearly 200 miles behind the record made by McFarland and Moran in 1908.

Ray Duer, who in 1909 established new paced records against time for all distances between 1 and 10 miles, added the 2-3 mile record to his list in 1910. His time was 55 seconds. Hardy Downing rode a half mile under similar conditions in the record time of 38 2-5 seconds and S. H. Wilcox rode the quarter mile in 19 seconds, also a new record. Riding against time unpaced new figures were made in four events, A. J. Clarke and E. A. Pye dividing the honors. Clarke rode the 2-3 mile in 1 minute 12 seconds and the 1 mile in 1 minutes 52 seconds while Pye rode 2 miles in 4 minutes 1 3-5 seconds and 3 miles in 6 minutes 9 1-5 seconds. In professional competition new records were made by P. O'Sullivan Hehir, who rode a third of a mile in 37 3-5 seconds; by A. J. Clarke, who rode 2 miles in 3 minutes 38 1-5 seconds and 4 miles in 8 minutes 16 2-5 seconds; by Alfred Gouillet, who rode 15 miles in 33 minutes 15 seconds; by Walter Demara, who rode 20 miles in 43 minutes 39 seconds; and by F. L. Kramer, who rode 25 miles in 54 minutes 13 seconds. In amateur competition no new records were made for the regulation distances.

**CYPRUS.** A Levantine island, occupied by Great Britain but nominally a part of the Ottoman Empire. Capital, Nicosia (14,752 inhabitants; 1908 estimate 16,079). Area, 3584 square miles. Population (1901), 237,022; 1908 estimate 258,997, exclusive of the military. Mohammedans, 56,026; Christians, 199,685. Larnaca (8681) and Limasol (9044) are the chief ports. Elementary schools (1908-9), 561 (376 Christian, 185 Moslem), with 28,680 pupils. Agriculture is the chief industry. Yield (1908): wheat, 2,521,468 bushels; barley, 2,345,872; vetches, 214,456; oats, 397,519. Olives, cotton,

grapes, carob-beans, fruits, linseed, silk, cheese, wool, and hides are also produced. Livestock (1898): 62,174 horses, etc.; 47,242 cattle; and, in 1908, 277,230 sheep and 256,345 goats. Irrigated for winter crops (1906-7), 1945 acres. Sponge fishing is carried on. Asbestos and copper are mined. Gypsum, terra umbra, and marble exist in abundance. The trade for three years, exclusive of specie, and the revenue and expenditure are given below:

	1906	1907	1908
Imports* .....	£501,921	£629,054	£567,444
Exports* .....	464,392	603,530	588,902
Revenue † .....	286,873	311,810	303,447
Expenditure † .....	182,066	203,209	244,061
Gov. grant † .....	28,000	50,000	50,000

\* Calendar years. † Fiscal years 1906-7, 1907-8, 1908-9.

Tonnage entered and cleared (1908), 955,859. Public debt, 292,537 pounds; yearly tribute to the Porte, 92,800 pounds. There are 746 miles of good roads; 61 of railways; 240 of telegraph lines; a cable connects with Alexandria. The colony is administered by a British high commissioner (1910, Sir Charles Anthony King-Harman), assisted by an executive council and a legislative body of 18 members.

**CYRENE**, EXCAVATIONS IN. See **ARCHÆOLOGY**.

**DA COSTA**, JOHN CHALMERS. An American surgeon, died December, 1910. He was born in Philadelphia in 1863 and graduated from the Scientific Department of the University of Pennsylvania in 1882. He studied at the Jefferson Medical College, graduating in 1885. He was connected with various hospitals and the Jefferson Medical College in Philadelphia as resident physician, assistant surgeon, demonstrator of surgery, and professor of surgery. He was one of the most eminent surgeons of the United States. He was the author of *A Manual of Modern Surgery* (1895-1906, 5 editions). He also edited the new American edition of Gray's *Anatomy of 1905* and contributed on surgical subjects to medical periodicals.

**DA FONSECA**, Marshal HERMES. See **BRAZIL**.

**DAGGETT**, WILLIAM G. See **NECROLOGY**.

**DAHLITE**. See **MINERALOGY**.

**DAHOMY**. A French colony in French West Africa (q. v.). Area, 107,000 square kilometres. Estimated population (1908), 820,443. Capital, Porto-Novo, with 22,507 inhabitants. There were in 1908 8 official schools, with 985 pupils; 20 private, with 2016; 105 Mussulman, with 1775. The principal products are as follows (the values given are for 1908 exports): Palm kernels, 5,557,658 francs; palm oil, 4,595,926; corn, 1,198,439; live animals, 137,611; copra, 80,633; textiles, 68,695; animal products, 19,606. Total imports and exports (1908), 10,737,378 and 12,179,530 francs respectively. Vessels entered, 439, of 25,964 tons; cleared, 439, of 55,211 tons. Total railways, 267 kilometres; telegraph lines, 2117 kilometres; number of post and telegraph offices, 25. Revenue in 1908, 3,289,507 (direct taxes, 1,104,844 francs; patents and licenses, 183,299; posts and telegraphs, 82,834; etc.); expenditure, 3,070,085. A lieutenant-governor (1910, H. Malan) administers the colony under the direction of the governor-general of French West Africa.

**DAIREN** (formerly, **DALNY**). See **KWANTUNG**.

**DAIRYING. MILK SUPPLY.** The number of milch cows in the United States in 1910 remained about the same as in 1909, but the quality of the stock has improved somewhat as the high price of beef sent many inferior cows to the shambles. The annual increase in the amount and value of milk and milk products was about normal. The conditions which govern the manufacture of butter, cheese, and condensed milk varied but little from preceding years, but the disturbing factors which affect the fresh milk supply of cities and large towns were more pronounced than usual. The amount of milk produced annually is constantly increasing and is now estimated at about 7,267,000,000 gallons, about one-third of which is consumed as such. Since milk is particularly the food of infants and invalids the agitation for a pure milk supply has become almost universal. The dairyman has been warned that he must keep only healthy stock and take more care in the handling of milk and cream. He has also been confronted with increased costs of living for himself and for his stock. But the consumer has objected to any increase in the price of milk and therefore the dairyman has been forced into an unenviable position until the public can be educated to appreciate sanitary milk at its true value. The year will be remembered as one of general unrest for those engaged in supplying cities with milk.

**PURE MILK REGULATIONS.** Nearly all of the large cities have increased the stringency of the milk regulations within a year or two. Many of them require a bacterial count in addition to a stated fat content and other requirements. Many restrictions concerning the production and sale of milk have been imposed by state as well as by municipal authorities. The city of Chicago passed through the second year of the enforcement of a drastic ordinance which requires that all milk sold in the city be pasteurized or be produced by cows which do not react to the tuberculin test. The same requirement was also announced for the city of Washington, D. C., in the latter part of the year. Boston has had a year in which no milk was lawfully sold in bulk. Among other regulations the Idaho State Board of Health announced the following: "No person, firm or corporation on and after May 15, 1910, shall give, furnish, sell or offer for sale, or deliver any milk or cream in quantities less than one gallon except in sanitary bottles, sealed with suitable cap or stopper, except where milk is sold at a milk house or dairy."

**PRICE AND COST OF PRODUCTION.** The most serious annoyance to the milk traffic was the Boston milk war between the producer and contractor. It lasted over five weeks and was the largest movement of its kind which has yet occurred. Boston consumes annually about 92,000,000 quarts of milk. Over one-half of this amount is shipped by producers from without the State. On the refusal of the city contractors to advance the price paid to the producer so that the latter would receive winter rates through the summer, many shippers ceased sending milk to Boston on May 1. The trouble was finally adjusted by a compromise. The contractors agreed to pay the winter price of 35½ cents per 8½ quart can for ten months. A joint special committee of the Massachusetts Legislature was appointed to investigate the dairy industry and after numerous hearings

recommended that the railroads provide an open car system for producers; that the railroad commissioners be given more authority over rates and service for milk transportation, and that better inspection of milk be provided. They concluded that dealers were making a fair profit and could afford to pay the producers at least 4 cents per quart. The Attorney-General of the State of New York investigated a so-called milk trust in New York City and found that a combination of dealers existed which fixed the sale price of milk to the consumer and the price paid to the producer. An important result was the reduction of the price of milk from 9 to 8 cents per quart. The Secretary of Agriculture made an inquiry concerning the price of milk in all of the large cities and discovered that the producers received less than 50 per cent. of the price which the consumer pays for the product. The railroads receive about 7 per cent. and the rest goes to the wholesaler and retailer. The average price paid in June by consumers in 78 cities was almost exactly 8 cents per quart. In the North Atlantic and North Central States the average was 7.5 cents, in the Western States 8.9 cents, in the South Central 9.1 cents, and in the South Atlantic States 9.3 cents per quart.

**STUDIES IN THE MILK PROBLEM.** At the call of the New York Milk Committee a conference on the milk problem was held in New York City in December which brought together a large number of specialists from all parts of the country who discussed the problems connected with controlling the milk supply in the interest of public health. During the year many bacteriological studies have been made of raw, pasteurized, and sterilized milk. Esten at the Connecticut Station has found that cows' mouths are the most abundant sources of at least one type of lactic acid bacteria, and that winter milk has a higher acidity than milk produced in the summer. Prescott and Breed at the Massachusetts Institute of Technology have devised a new and more accurate method of counting leucocytes in milk, a much larger number being normally present than was revealed by the methods previously used. Hewlett and his associates in England find that there is a large increase in the number of leucocytes in milk at the beginning and end of the lactation period. Hoffman at the Wisconsin Experiment Station found that in milk high in leucocytes from normal causes the leucocytes do not contain fibrin, which is an important distinction in studying pathological conditions of the udder. At the Virginia Experiment Station it was found by actual count that sprinkling the straw bedding in cow stalls so as to prevent dust and bacteria from arising reduced the percentage of bacteria 53 per cent. and that the number was still further reduced by using a closed pail and moistening the flanks of the cow before milking. Romer and Sames in Germany have tested the effect of sterilizing milk with ultraviolet rays. They do not consider it a practical method as the milk acquires an acid taste before it is completely sterilized.

Ayers and Johnson of the United States Department of Agriculture have completed the most thorough study of pasteurized milk ever made. They found that the relative proportion of the peptonizing, lactic acid, and alkali groups of bacteria is approximately the same

in pasteurized and in clean raw milk. Pasteurizing does not prevent milk from souring but merely delays the process. Peptonizing does not take place unless the milk is heated at a temperature high enough to destroy all germs in the negative stage.

**COW-TESTING.** Many new cow-testing associations have been organized during the year. The value of these associations is shown by one which has been in existence for four years. In this case the annual profit per cow has been nearly doubled and the average return for each dollar invested in feed has increased from \$1.64 to \$1.98. A Holstein cow owned by the Missouri Experiment Station has surpassed the previous world's record for milk production for six months. In that length of time she produced 17,008 lbs. of milk or an average of 93.4 lbs. per day for 182 days. At that station a careful study was made between heavy and light milkers. The real difference in the capacity of individual cows to produce milk economically was proved to be in the ability to consume a large amount of feed above maintenance requirements, rather than in the ability to make a better use of the food eaten.

**CONDENSED MILK.** The condensed milk industry has increased so that the factories in the United States require 1,500,000,000 pounds of fresh milk annually. Hunziker at the Indiana Station has made studies on factors affecting the quality of the product and has found that breed, feed, care of the cows, period of lactation, care of the milk and season of the year greatly influence the effect of concentration on the marketable properties of condensed milk, and he recommends a change in the Federal Standard. The use of dried milk is on the increase, and a method has been devised in which the action of cold is substituted for that of heat during the first stages of the process.

**BUTTER AND CHEESE.** The continued high price of butter has curtailed its use to some extent and its place has been taken by oleomargarine. The output of uncolored oleomargarine has doubled since 1908, and if this increase continues the price of butter and its consumption per capita will be reduced. A study of the keeping qualities of butter at the Michigan station show that one species of organism was active at a temperature of  $-6^{\circ}$  C. in salted butter. A series of studies for the past four years at the Illinois station shows that the pasteurization of milk does not affect the body or texture of the butter nor improve the quality of the butter made from milk of a poor quality. The method of making cheese of the Cheddar type from pasteurized milk has been improved by experiments carried out by the Wisconsin Experiment Station so that a cheese of uniform texture and quality can be made throughout the year with the use of hydrochloric acid.

#### DAIRY PRODUCTS OF FOREIGN COUNTRIES.

(1) **CANADA AND GREAT BRITAIN.** The dairy industry in Canada has made the usual growth, but as in the past three years the exports of dairy products decreased owing to a larger home consumption. The total value of dairy products exported was about \$20,000,000; the greater portion consisted of cheese, nearly all of which was sent to Great Britain. An accidental printers' error in the Aldrich-Payne tariff bill which reduced the tariff on cream entering the United States from 5 cents

per pound to 5 cents per gallon has caused heavy shipments of cream from Canada to the Northern States to be manufactured into butter.

Since 1880 there has been a remarkable change in the milk trade in the United Kingdom, so that milk is now the chief source of income to many who formerly depended upon wheat. The annual milk production is now estimated as 8,686,000 tons, valued at £57,725,000. A notable change in the industry is the formation of large coöperative milk supply depots. A movement has recently been started to send fresh milk from Ireland to the London market. Although Great Britain makes about 75,000 tons of butter per year, the imports amount to 210,000 tons, exceeding in value the imports of every other article of food except wheat and sugar. The imports of butter from foreign countries has decreased the past year, but there was a corresponding increase of colonial importations, due to the development of the dairy industry in Australia and New Zealand.

(2) **OTHER FOREIGN COUNTRIES.** Holland is sending more butter to Germany than formerly. Germany is also importing a large amount of butter from Siberia. Denmark exported about 17,000,000 lbs. of milk and 25,000,000 lbs. of cream to Germany; and 180,000,000 lbs. of butter, a large part going to Great Britain. The use of casein in the arts has increased 100 per cent. in Europe the past five years, Germany alone consuming 4000 tons annually. The principal uses of this important constituent of milk are as sizing for paper, paint, patent foods, combs, buttons, etc., and experiments are in progress for using it for many other purposes. Because of reforms in the land tenure of the peasantry, creameries are springing up in Siberia and to a less extent in European Russia in all sections where the transportation facilities are adequate for the shipment of butter. There are now 1868 butter factories in Siberia; about 30 per cent. are managed by artels (union associations). The exports of butter from Western Siberia in 1910 amounted to 130,000,600 lbs., an eight-fold increase since 1900. The total number of dairy cows in Australia is 1,900,000, with a milk production of 450,000,000 gallons. The butter and cheese factories number 560. Each year shows a gain in butter production and next to wool, wheat, and mining products butter is the greatest source of income, the exports now having reached the value of \$12,000,000 per annum. The latest available figures show a total production of 145,000,000 lbs. New Zealand has within five years doubled its output of dairy produce. The dairy industry in Argentina is making some growth, though it is of far less importance than the dressed meat trade. In 1910 there were 29 butter factories, 76 cheese factories, 85 factories for making a variety of products and 529 establishments designated as creameries. Among the important books on dairying published were Grimmer, *Chemie und Physiologie der Milch*; McCaffrey, *The First Century of Dairying in New South Wales*; Martin, Vol. II of *Geschichte der Rahmgewinnung*; Publow, *Fancy Cheese in America*; and a revised edition of *Milk and Its Relation to Public Health*, published by the United States Public Health and Marine Hospital Service.

**DALAI LAMA.** See CHINESE EMPIRE, *History*.

**DALLAS.** See MUNICIPAL GOVERNMENT.

**DALZELL, JOHN.** See PENNSYLVANIA and UNITED STATES, section *Congress*.

**DAMS.** The construction of dams is of course a natural part of the formation of great reservoirs for IRRIGATION and WATER SUPPLY projects and the reader is referred to these articles for additional information. The dams described below, built during the year, showed novel features of design or construction.

**BARREN JACK DAM.** There was in course of construction during 1910 in New South Wales a dam for the storage of water for irrigation purposes which was pronounced to be, when finished, one of the largest works of its kind in the world. The project was being carried out by the Colonial government and was for the purpose of impounding the waters of the Murrumbidgee River and two of its tributaries. The main river was to be converted into a lake for a distance of 40 miles above the dam, while the two smaller streams were to be backed up for 24 and 19 miles, respectively. The total storage capacity thus provided will be 785,000 acre feet, that is, the equivalent of a body of water one foot deep, flooding 785,000 acres. The rock in that part of the country is granite, and large quantities of boulders or "plums" were available at the site. These boulders are built into the concrete, making an unusually massive combination exactly suited to the purpose. The dam is curved against the pressure of the water, the radius of the inner face being 1200 feet. To give an idea of its size, which is in some respects greater than that of the Roosevelt dam in Arizona, it is worthy of note that the structure here described, and called locally the Barren Jack dam will be 784 feet long, 240 feet high, with a width of 18 feet at the crest, and when filled up to the spillway, the water will be 224 feet deep at the inner face. The estimated cost is \$3,680,000,—and it is hoped to finish the work in 1913.

**LA PRELE RIVER DAM.** On the La Prele, a branch of the Upper Platte River, a dam was in course of construction at a point 15 miles west of Douglas, Wyo., to impound water for an irrigation project that has about 20 miles of canals and ditches. The dam is built between the steeply inclined cliffs to a height of 130 feet. It is 330 feet long on the crest, and 110 feet long at the base, which is carried down to solid rock. It is being built of reinforced concrete, and the unusual feature of it is its form, which is that of a prism, open on one side, and strengthened by a series of slender buttresses running from base to crest, interconnected and strengthened by horizontal braces. This is known as a "hollow" dam, and offers great resistance to the pressure of the water behind it while requiring a small amount of material in its construction.

**BUTTRESSED MASONRY REINFORCED CONCRETE DAM.** In connection with the use of reinforced concrete for engineering works, there was an interesting case of its employment in the construction of a small dam on the Raritan River at High Bridge, N. J., where a masonry dam, with concrete core and up-stream face, was reinforced with steel I beams. The dam is 210 feet long and 42 feet high, 4 feet thick at the crest and 16 feet thick at base. The outside wall is built of heavy, rough rubble, with a coping of cut stone. In front, on the down stream side, it is strengthened by cut stone buttresses, 6

feet thick, and spaced 30 feet centre to centre. The core of the dam, made of concrete, is reinforced with a series of steel beams, increasing in size and weight from top to base. Thus, at the top, the beams are 12 inches in I section, weighing 40 lbs. per foot, and at the base they are 18 inch, 62 lb. beams. Under existing conditions, this was better than the usual form of steel rod reinforcement, with but little increase in expense. See also CONCRETE AND IRRIGATION.

**DANA, SYLVESTER.** An American lawyer, died January 4, 1910. He was born at Oxford, Me., in 1816, and graduated from Dartmouth College in 1839. He began the practice of law in Concord, N. H., in 1839 and resided in that city during the rest of his life. He studied in the office of General Franklin Pierce, afterwards President of the United States. After 20 years of active general practice he was appointed Judge of the Municipal Court, which he held until compelled to retire by the statutory age limitations. He was the oldest attorney in New Hampshire, and the oldest graduate of Dartmouth College.

**DANA, WILLIAM B.** An American editor and publisher died October 10, 1910. He was born in Utica, N. Y., in 1829 and graduated from Yale College in 1851. He studied law and published, died October 10, 1910. He was up the law to enter the publishing business. He purchased *Hunt's Merchant's Magazine*, a monthly, and after several years changed its name to *The Commercial and Financial Chronicle*, taking for his model the London *Economist*. He made this one of the most important financial papers in the United States.

**DANBURY HATTERS CASE.** See BORTCOTT.

**DANDLIKER, KARL.** See NECROLOGY.

**DANIEL, JOHN WARWICK.** United States Senator from Virginia, died June 29, 1910. He was born in Lynchburg, Va., in 1842. He was educated at private schools and at the Lynchburg University School, of which he was an attendant at the outbreak of the Civil War. He enlisted in the Confederate Army and was made a second-lieutenant in Stonewall Jackson's brigade. He was wounded at the first battle of Bull Run. After several engagements he was promoted to the office of major and chief of staff to General Jubal A. Early. He served until wounded at the battle of the Wilderness in 1864. After the close of the war he studied law at the University of Virginia and was admitted to the bar in 1866. He began the practice of law with his father and was elected to the Virginia House of Delegates, serving until 1872, and from 1875 until 1881 was a member of the State Senate. He was a delegate at large to the National Democratic Convention from 1880 until 1904. In 1881 he was nominated for governor but was defeated by William E. Cameron. He was elected to the House of Representatives in 1884, and to the Senate in 1887, and was re-elected for successive terms from that time including the term 1911-1917. Senator Daniel was known as one of the conservative type of Senators and had a remarkable knowledge in the science of constitutional government. He was not often heard in the Senate in the latter years of his service but when he spoke his words were received with close attention. He was often mentioned as a possible Democratic candidate for

the presidency. He had a profound knowledge of the law and was the author of *Attachments under the Code of Virginia, Negotiable Instruments*, etc.

**DANIEL'S COMET.** See ASTRONOMY.

**DANISH WEST INDIES.** A Danish colony made up of three West Indian Islands: St. Croix (area, 84 square miles; population in 1901, 18,590); St. Thomas (33; 11,012); St. John (21; 925). The inhabitants are chiefly free negroes engaged in the raising of the sugar cane. Trade with Denmark in 1908: imports £55, exports £1800; with Great Britain £202,673 and £212,147. The former considerable trade with Denmark has fallen off in late years. Governor (1910), P. C. Limpriicht.

**DARLEY, Sir FREDERICK MATTHEW.** An Australian jurist, died January 4, 1910. He was born in Ireland in 1830 and was educated in Dungannon College and Trinity College, Dublin, graduating from the latter in 1851. In 1853 he was admitted to the Irish bar, and practised for some years in Ireland. In 1861 he went to New South Wales, where he was admitted to the bar in 1862. He soon became one of the most prominent lawyers in the State. In addition, he occupied foremost positions in the Legislative Council and the Executive Council. In 1886 he was appointed Chief Justice of the State, an office which he held for over 20 years. In 1902 he was appointed a member of the Royal Commission in the South African War. He was for some years lieutenant-governor of the colony and on several occasions acted as governor.

**D'ARREST'S COMET.** See ASTRONOMY.

**DARTMOUTH COLLEGE.** A university for higher education at Hanover, N. H., founded in 1769. The number of students in the several departments of the college in 1909-10 was as follows: Academic department, 1141; medical school, 41; Thayer school of civil engineering, 43; Amos Tuck school of administration and finance, 33. The faculty numbered 120. The following were appointed new members of the faculty for the year 1910-11: Walter Van Dyke Bingham, Ph. D., assistant professor of psychology; Clifford Pease Clark, Ph. D., instructor in Greek and Latin; Harold Ripley Hastings, Ph. D., instructor in Latin; Charles Joseph Hilkey, Ph. D., instructor in political science; Raymond Watson Jones, Ph. D., instructor in German; Herbert Hunter Vaughan, Ph. D., instructor in Romance languages; Francis Asbury Waterhouse instructor in French. During the year the college received \$100,000 from the alumni for the construction of a new gymnasium, and \$10,000 on account of bequest of \$50,000 for the new administrative building. The productive funds amounted in 1909-10 to \$2,871,640 and the income to \$362,958. The library contains about 100,000 volumes. The President is Ernest Fox Nichols.

**DARWINISM.** See BIOLOGY; PHILOSOPHY; LITERATURE, ENGLISH AND AMERICAN.

**D'AUBIGNÉ, M.** See FRENCH LITERATURE.

**DAUGHTERS OF 1812.** See PATRIOTIC SOCIETIES.

**DAUGHTERS OF THE REVOLUTION.** See PATRIOTIC SOCIETIES.

**DAVENPORT, C. B.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**DAVEY, P. B.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**DAVIES, G. S.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**DAVIS, ANDREW JACKSON.** An American lecturer and writer on spiritualism, died January 13, 1910. He was born in Orange county, N. Y., in 1826, and dictated his first book on *Principles of Nature* in 1845, after a trance of 16 hours, during which he claimed to have received his inspiration from communion with inhabitants of the spirit world. Among his other writings are *The Penetralia* (1856), *The Magic Staff*, an autobiography (1857), *Arabula or the Divine Guest* (1867), *Mental Diseases and Disorders of the Brain* (1871), and *Autobiography* (1885).

**DAVIS, REBECCA (HARDING).** An American author and miscellaneous writer, died September 29, 1910. She was born in Washington, Pa., in 1831 and began her literary career by contributing in 1861 to the *Atlantic Monthly* an article entitled "Life in the Iron Mills." In the following year the *Atlantic* published her first long novel, "Margaret Howth." In 1869 she joined the editorial staff of the New York *Tribune* and remained there for several years. She was one of the best known contributors to American magazines. In addition to her short stories she was the author of *Waiting for the Verdict*; *Dallas Galbraith*; *John Andrus*; *A Law unto Herself*; *Earthen Pitchers*, *Kent Hampden*; *Silhouettes of American Life*; *Frances Waldeau*; *Dr. Warrick's Daughters*, and *Bits of Gossip*. She married, in 1863, L. Clark Davis and was the mother of Richard Harding Davis and Charles Belmont Davis, both well-known writers.

**DAVIS, WILLIAM VAIL WILSON.** An American Congregational clergyman, killed by accident August 25, 1910. He was born in Wilson, N. Y., in 1853 and graduated from Amherst College. For a time following his graduation he was a teacher at Roberts College, Turkey, but his health failed and he returned to the United States. After his graduation from Andover he became pastor of the Congregational Church at Manchester, N. H., where he remained for six years. He then accepted a call to the Euclid Avenue Presbyterian Church in Cleveland, O. At the close of his fifth year of service he resigned. In 1888 he was called to the Union Congregational Church of Worcester, Mass. There he remained until 1893, when he became pastor of the First Congregational Church of Pittsfield, Mass. Dr. Davis was a close student of missionary work and was a corporate member of the American Board. He was for a time on the Board of Trustees of Western Reserve University. He was one of the best known clergymen in New England.

**DAWES, CHARLES D.** See CENTRAL BANK.

**DAY, CHARLES ORRIN.** An American theologian and educator, died April 5, 1910. He was born in Catskill, N. Y., in 1851, and graduated from Yale College in 1872. He studied at Andover Theological Seminary, graduating in 1877. In the same year he entered the Congregational ministry. In 1877-8 he was a city missionary in Montreal and from 1879 to 1884 was pastor in Williamsburg, Mass. After a year spent in post-graduate study at the Yale University Divinity School, he became in 1885 pastor of the Congregational Church at Brattleboro, Vt., serving in this pastorate until 1898. In 1901 he was chosen president and professor of homi-

letics and practical theology at the Andover Theological Seminary.

**DAYLIGHT COMET.** See ASTRONOMY.

**DEAF, SCHOOLS FOR THE.** See EDUCATION IN THE UNITED STATES.

**DEATH RATE.** See VITAL STATISTICS.

**DEATHS FROM DISEASE.** See VITAL STATISTICS.

**DEBIERNE'S EXPERIMENTS.** See CHEMISTRY.

**DEBT, PUBLIC.** See UNITED STATES and articles on foreign countries.

**DEBTS, STATE.** See articles on STATES OF THE UNITED STATES.

**DECISIONS, JUDICIAL.** See UNITED STATES, *Judiciary*.

**DE CHARTRES, ROBERT LOUIS PHILIPPE** EUGÈNE FERDINAND D'ORLÉANS, DUC. A French nobleman, died December 5, 1910. He was born in Paris in 1840, and was the brother of the Comte de Paris and uncle of Philippe Duc d'Orléans, the French Pretender. He was the grandson of King Louis Philippe, and on the dethronement of that sovereign that he was driven with his mother, into exile. He was at this time eight years of age. After living for many years in Germany and England he graduated from the Military School at Turin in 1859, and served in the Piedmontese army during the Italo-Austrian War. On the outbreak of the Civil War in the United States, he, with his brother, the Comte de Paris, entered the Federal service, and he was made a captain in the Army of the Potomac. He served as aide to General McClellan during the Peninsular Campaign and resigned in 1863, returning to England. In 1870, on the outbreak of the Franco-Prussian War, he was living in England under the ban of exile as a Bourbon, and his request for a commission in the regular army of France was refused. After the revolution of September 4, he returned to Paris with friends of his family and offered his services to the government for the defense, but was again repulsed. He then entered the army under the name of Robert le Fort and took part in several battles. On account of his knowledge of German he was employed in the negotiations to fix the boundary line between the German and French armies during the final armistice. He was afterwards awarded the decoration of the Legion of Honor and after the abrogation of the laws of exile which had operated against the Bourbons he became chief of squadron of the 12th Chasseurs d'Afrique. He was removed from active service in 1886 under the law which prevented any member of the so-called royal family to serve in the army or navy. He married in 1863 his cousin, Françoise, Princess of Orléans. One son, Jean, Duc de Guise, and two daughters, survive him.

**DECLARATION OF LONDON.** See LONDON, DECLARATION OF.

**DE DINO, DUCHESSE DE.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**DEEP SEA EXPLORATION.** See ZOOLOGY.

**DEGREES, COLLEGE.** See UNIVERSITIES AND COLLEGES.

**DE GROOT, J. J. M.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**DE HASS, WILLS.** An American physician and anthropologist, died January 24, 1910. He was born in Washington County, Pa., in 1817, and was educated at Western University and Washington and Jefferson College, and attended

lectures in medicine at Jefferson College. He practiced medicine in Virginia, Louisville, Ky., and Washington, D. C. At the beginning of the Civil War he recruited the 77th Ohio Regiment from the border counties of Virginia and Ohio and commanded the advance in Sherman's division at Shiloh. He was active in Virginia in support of the Union and the restoration of the State government and was among those whose efforts secured the final separation to form the new commonwealth of West Virginia. He early turned his attention to historical and scientific studies and extensively investigated American prehistoric archaeology. He was for a time United States Consul in Yucatan. He delivered many lectures before historical and scientific societies and was the author, among other works, of the *History of the Early Settlement and Indian Wars of Western Virginia*; *History of West Virginia*; *Attempts to Separate the West from the East*; *The Civil War in Virginia*; *Prehistoric America*; *The Mound Builders—Their Monumental and Art Remains*; *Antiquities of Ohio Valley Ancient Tablets*; *Reminiscences of Half a Century*, and many monographs and papers on American history and archaeology.

**DELAGRANGE, LÉON.** A French sculptor and aviator, killed as the result of an accident to his aeroplane, January 4, 1910. He was born in 1872 at Orléans and was educated at the Fine Arts School in Paris. As a sculptor he accomplished some notable work. Among the best known pieces made by him are the following: "Florentine Page"; "A Templar"; "Love and Youth"; "A Huguenot"; and "Girl Dancers." He became interested in aviation and made some of the most notable performances in his aeroplane recorded in 1908-9. His first public flight was made in March, 1907. He established a time record on September 5, 1908, in a flight of 15.2 miles in 29 minutes and 53 seconds. In May, 1909, he received the Lagatiner prize at Juvisy, making 3.6 miles in 10 minutes and 18 seconds. One of his most sensational performances was a flight made on October 16, 1909, at Doncaster, England, in a storm so severe that no other aviator would brave it. On the following day he established a world record for speed in a flight of six miles made in 7 minutes, 36 seconds, averaging about fifty miles an hour. On December 30, 1909, he established a new monoplane record. The accident which resulted in his death occurred at Pau while he was carrying on experiments at the meeting held at that place. In 1909 he was decorated with the Order of the Legion of Honor and in 1910 was presented with a medal by the Paris Academy of Sciences. In 1907 he was president of the Aero Club in France. He was the first aviator to meet death in a monoplane.

**DELAWARE.** One of the South Atlantic Division of the United States and one of the thirteen original States. It has an area of 2370 square miles, of which 1965 square miles are land and 405 are water. Its capital is Dover.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 202,322, as compared with 184,735 in 1900 and 168,493 in 1890. The gain in the decade from 1900 to 1910 was 9.5 per cent. The State ranks forty-seventh among the States in point of population, whereas in 1900 it ranked forty-fifth. The population of the larger towns and

cities will be found in the tables in the article CENSUS.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909-10 are shown in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	202,000	6,424,000	\$3,340,000
1909.....	200,000	6,200,000	3,686,000
Winter Wheat, 1910.....	122,000	2,074,000	1,867,000
1909.....	118,000	1,652,000	1,718,000
Oats, 1910.....	4,000	135,000	68,000
1909.....	4,000	102,000	49,000
Rye, 1910.....	1,000	16,000	11,000
1909.....	1,000	14,000	10,000
Buckwheat, 1910.....	2,000	41,000	27,000
1909.....	2,000	40,000	24,000
Potatoes, 1910.....	10,000	1,030,000	618,000
1909.....	9,000	864,000	622,000
Hay, 1910.....	77,000	110,000a	1,628,000
1909.....	109,000	109,000	535,000
(a) tons.			

**FINANCE.** The report of the treasurer for the fiscal year showed a balance in the treasury at the end of the fiscal year 1909 of \$97,160. The total receipts during the year were \$743,675 and the total disbursements were \$759,911, leaving a balance at the end of the fiscal year 1910 of \$80,924. The chief sources of revenue were from railway companies and corporations. The chief expenditures were for schools, charities and executive expenses. The State debt at the end of the fiscal year amounted to \$825,785. A portion of this, however, includes debts of one fund of the State to another. The amount of State bonds outstanding was \$545,000.

#### POLITICS AND GOVERNMENT.

There was no meeting of the State legislature in 1910, as the sessions are biennial and the last was held in 1909. The next session begins on January 3, 1911.

**CONVENTIONS AND ELECTIONS.** There was no election for governor in 1910, as Governor Pennewill's term does not expire until 1913. The elections were for Representative in Congress, State Treasurer and State Auditor. The Republican Convention met on August 31 to nominate candidates for these offices. There was no trace of insurgency in the convention and this issue was not referred to in the platform. Representative William H. Heald of Wilmington was renominated without opposition. He supported Speaker Cannon in the preceding session of Congress. The Democratic State Convention met on September 13. There was a contest over the nomination for Congress and this occupied an entire day and two full secret ballots were taken. The candidates were Robert C. White of Sussex County, formerly Attorney-General of the State, and William Saulsbury. Mr. White was finally nominated. The convention also chose Millard F. Davis of Wilmington for State Treasurer, and William H. Walker of Dover for Auditor. The "wet" and "dry" issue figured largely in the convention, the deciding vote for Representative being cast by the Newcastle County delegation, the majority of whom were license men and did not wish the nomination of Saulsbury, who was an advocate of no-license. The platform adopted at the convention contained a plank favoring the revision and gradual reduction of the tariff. It also denounced any suggestion that provisions and limitations of the Federal Constitution should be disregarded, and made declaration against any encroachment upon the rights inherent in the State either by executive, legislative or judicial action. At

the November election the voters of the rural portion of Newcastle county, forming a local option district, cast their ballots for and against the sale of liquor. The vote stood 4378 for license and 3630 against license, a majority of 748 for license. The same district in 1907 gave a majority of 571 for license. Thus all of Newcastle county, in which Wilmington is situated forming its own local option district, remains "wet." Kent and Sussex counties continue "dry." After the election there were many charges made, in a general way, that the Republicans had secured the election of their State ticket by the wholesale use of money. But few specific charges were made, and several men were arrested on various charges of bribery or attempted bribery. When the year closed no convictions had been noted and no cases brought to trial. The Attorney-General of the State, however, began an investigation and questioned the various committeemen of both the Republican and Democratic parties as to the expenditure of money. No report was made up to the close of the year and the investigation was continued. The charges of bribery were made by the Democrats, and vigorous denials were filed by the Republicans, who returned with charges that the Democrats used both money and whiskey to influence voters.

**OTHER EVENTS.** In 1909 several convictions were obtained for bribery in elections in the State. On February 2, 1910, John Godwin, who had been convicted for attempt to bribe a voter, appealed to the Supreme Court of the United States. On January 19th preceding, the State Supreme Court had denied Godwin's appeal and affirmed the finding of the lower court, sentencing him to the workhouse for two years.

**DELISLE, LÉOPOLD VICTOR.** A French historian and bibliographer, died July 22, 1910. He was born at Valognes in 1826. For many years he was connected with the Bibliothèque Nationale. In 1871 he was made director of the department of manuscripts, and in 1874 general director of the great library. His published works include *Rouleaux des morts du IXème au XVème siècle* (1866); *Le cabinet des manuscrits de la Bibliothèque Nationale* (3 vols., 1868-81); *Inventaire général et méthodique des manuscrits français* (Vols. 1 and 2, 1876-78) and *Les Bibles de Gutenberg* (1894).

**DELOS.** See **ARCHÆOLOGY.**

**DEMOCRATIC PARTY.** See **UNITED STATES, History.**

**DEMOCRATIC PLATFORM.** See **UNITED STATES, Campaign of 1910.**

**DE MORGAN, Wm.** See **LITERATURE, ENGLISH AND AMERICAN, Fiction.**

**DENMARK.** A constitutional monarchy of northern Europe. Capital, Copenhagen.

**AREA AND POPULATION.** Recent statistics place the area at 38,985 square kilometres (15,052 square miles). Population at end of 1897, 2,355,000; census of 1901, 2,464,770; estimated at end of 1907, 2,645,000. Marriages (1909), 19,944; births (including still-births), 78,116; deaths, 37,622; emigrants, 6782. Copenhagen had (1906), 426,540 inhabitants (suburbs inclusive, 514,134); Aarhus, 55,193; Odense, 40,547; Aalborg, 31,509.

**EDUCATION.** Primary education is free and compulsory. Public elementary schools (1908), 3408, with 358,464 pupils. The secondary schools had an attendance of 55,000. There are special and technical schools. The University of Copen-

hagen has five faculties. Complete religious toleration prevails, though the Lutheran is the established church.

**INDUSTRIES.** Agriculture is the chief occupation, and about 80 per cent. of the total area is productive. Rye is the principal bread grain, and the yield in 1910 was estimated at 18,600,000 bushels. Wheat is cultivated only on a small scale; an estimate founded on official data puts the yield at 4,100,000 bushels in 1910, against 4,000,000 bushels in 1909. Area under all cereals in 1908, 2,871,590 acres; yield, 99,000,000 bushels (of which over one-third was oats); area under permanent pasture, 3,103,519 acres. Butter and other animal products are the most important exports. Livestock (1903): 1,840,466 cattle, 486,935 horses, 876,830 sheep, 1,456,699 swine, 38,984 goats.

Fisheries products, total value in 1907, 13,587,472 kroner; in 1908, 13,180,000. There were (1908) 31 distilleries, with spirits output (reduced to 80°) of 699,275 gallons (32,893,495 potter). Beer produced (1907), 23,313,000 gallons, exciseable and 33,898,196 non-exciseable. Sugar factories (1907), 7; output, 66,300 tons of beet sugar. Margarine, etc., factories, 16; output, 29,030 tons.

**COMMERCE.** The imports and exports for four years, general and special, are given in thousands of kroner as follows:

	1906	1907	1908	1909
Imports gen.....	725,626	788,866	711,608	725,087
" spec.....	559,828	681,129	550,729	566,782
Exports gen.....	559,508	604,922	616,943	608,081
" spec.....	393,512	416,863	439,518	443,822

The principal articles of import for home consumption and exports of domestic products are given for 1908 in thousands of kroner:

Imports	1908	Exports	1908
Cereals .....	80,383	Butter .....	183,079
Oilcake .....	56,536	Meat .....	112,839
Coal .....	43,562	Animals .....	39,659
Ironware .....	31,069	Eggs .....	27,418
Timber .....	25,062	Skins .....	12,512
Woolens .....	18,334	Fish .....	7,409
Other textiles.....	17,117	Ships .....	6,587
Grease .....	10,978	Barley .....	6,291
Tobacco .....	10,508	Ironware .....	5,640
Margarine .....	10,078		

**COMMUNICATIONS.** Length of railways in operation at end of 1908, 3404 kilometres (State, 1917). Length of telegraph wires (1909-10), 12,296 kilometres (State-owned); of telephone wires, 361,803; telegraph offices, 172; post-offices, 1073.

Principal countries of origin and destination (general trade) in thousands of kroner:

	Imports from		Exports to	
	1908	1909	1908	1909
Germany .....	238,475	256,039	121,895	133,061
Great Britain ..	109,460	113,502	337,033	329,567
United States...	112,910	86,196	24,780	31,126
Russia .....	66,673	83,248	40,129	29,838
Sweden .....	58,050	58,274	46,120	39,542
Netherlands ..	17,982	23,094	2,587	2,099
France .....	16,411	16,264	658	1,026
Norway .....	10,717	10,674	22,079	18,600
Belgium .....	9,609	10,417	1,428	1,981
Dan. Colonies..	7,151	10,546	5,623	3,764

Merchant marine, December 31, 1908, 4260 vessels, of 541,148 tons (707 steamers, of 405,028 tons). Entered at Danish ports (1908), 37,018 vessels, of 3,721,222 tons cargo; cleared,

35,502, of 1,274,369 tons cargo. Coasting trade: entered, 35,872 vessels; cleared, 35,418.

FINANCE. The unit of value is the krone, worth 26.8 cents. Revenue and expenditure for three years are given in kroner:

	1907-8	1908-9	1909-10
Revenue .....	98,499,771	93,359,181	135,248,843
Expenditure .....	94,119,618	107,996,039	138,179,461

The budget for 1910-11 appears below in thousands of kroner (total revenue, 94,977,996 kroner; total expenditure, 115,016,781):

Rev.	1000 kr.	Exp.	1000 kr.
Ind. taxes .....	62,409	War .....	18,872
Direct " .....	17,523	Pub. Works* .....	17,162
Interest, etc. ....	4,639	Instruction .....	18,024
From capital .....	3,851	Marine .....	11,077
Lottery .....	1,550	Interior .....	12,214
Posts & Tels. ....	1,222	Debt .....	9,490
Domains .....	1,038	Justice .....	8,922
Various .....	2,725	Finance .....	7,087
		Agriculture .....	5,144
Total .....	94,977	Pensions .....	4,996
		Pub. Works† .....	2,994
		Civil list .....	1,155
		For. Affairs .....	1,031
		Rigsdag, etc. ....	958
		Commerce, etc. ....	620
		Iceland (admin.) ..	270
		Total .....	115,016

\* Cost of first installation for public enterprises.  
† Department.

Public debt, March 31, 1910: Internal, 81,886,932 kroner; foreign, 219,867,250. The accounts of the National Bank, July 31, 1908, balanced at £10,744,240. Savings banks (March 31, 1908), 518, with 1,267,362 depositors and £40,172,345 deposits.

ARMY. The army in 1910 was being reorganized according to the provisions of the National Defense Bills of 1909. It is organized on a peace basis into two corps, and while service is nominally obligatory between the ages of 22 and 39, yet the present army is actually recruited by men serving for various periods, the maximum being 1 year in the artillery and 13 months with various technical troops, and the period for the infantry 165 days. The army on a peace basis is made up of about 830 officers and 12,000 men; in 1910 there were over 11,000 troops with the colors. The formation provided for 31 line battalions of infantry and 21 battalions of the reserve, 12 squadrons of cavalry, 24 field batteries, 18 coast batteries, of which 12 are in the line and 6 in the reserve, and 12 companies of engineers. The effective war strength on mobilization of Denmark in 1910 was estimated at 83,000 men, of whom 58,500 would be infantry, 5000 cavalry, 6890 and 8600 fortress artillery. The effective was estimated at about 70,000. The reorganization was being developed in 1910 and substantial progress was made.

NAVY. The fleet, maintained for purposes of coast defense, includes 3 monitors, 3 torpedo gunboats, 14 first-class torpedo boats, one submarine, and a number of small auxiliary vessels. Two submarines are building.

GOVERNMENT. The executive authority is vested in the king and his responsible ministers; the legislative power, in the Rigsdag, composed of the Landsting and the Folkething. The present king, Frederick VIII., was born June 3, 1843; married (1869) to Princess Louisa of Sweden and Norway; succeeded to the throne

January 29, 1906. Heir-apparent, Prince Christian, born September 26, 1870. The ministry resigned *en bloc* May 27, 1910, as a result of the general elections; and was reconstituted July 5, 1910, as follows: President of the Council and Minister of War and Marine, K. Berntsen; Foreign Affairs, C. W. Count of Ahlefeldt-Laurvigen; Agriculture, A. Nielsen; Worship and Instruction, J. Appel; Public Works, T. Larsen; Interior, J. Jensen-Sinderup; Finance, N. T. Neergaard; Commerce and Navigation, O. H. V. B. Muus; Justice, F. T. von Bülow; Minister for Iceland, Bjorn Jonsson.

HISTORY. The chief question before the Folkething in 1908 and 1909 was that of national defense. On September 24, 1909, the Folkething passed a compromise defense measure providing for strong sea defenses at Copenhagen, but leaving the land defenses as they were in the 1880's, though strengthened somewhat by two new so-called sea-forts. This did not satisfy the Conservatives, who desired thorough land defenses and went too far for the Socialists, who desired disarmament. A Cabinet crisis followed in October, and for the first time a Radical Cabinet was chosen. This new Ministry under M. Zahle had only a precarious majority and did not attempt to reverse the defense policy, but announced in November that it would carry out the measures that had been adopted. Meanwhile charges had been made against the former Ministers, MM. Christensen and Berg, of neglect of duty in connection with the affair of M. Alberti, the former Minister of Justice, who had been found guilty in 1908 of embezzling a sum estimated at \$4,000,000. On December 1, 1909, a committee of the Folkething appointed to consider these charges reported in favor of arraigning M. Christensen before a judicial body of the state. In 1910 the court acquitted ex-Premier M. Christensen, but at the same time expressed strong condemnation of his conduct while in office. M. Berg was fined to the amount of \$1000 for not having investigated the Alberti affair when suspicion first arose concerning it. The Folkething was dissolved at the end of the ordinary session, the Radical Ministry hoping to secure a majority in the elections for a repeal or amendment of the National Defense measures, but the elections which were held in May went against the government. M. Zahle resigned and a new Ministry was formed on July 5 by M. Klaus Berntsen. N. T. Neergaard held the portfolio of Finance in the new Cabinet. King Frederick attended the funeral services of King Edward VII. in London.

DENNISON, JAMES. An American educator, died March 20, 1910. He was born in Royalton, Vt., in 1837. At the age of nine years he became partly deaf and was educated at the Hartford, Conn., school for the deaf. He was, for a short time, an editor at Flint, Mich., and removed to Washington at the invitation of his brother-in-law, Dr. E. M. Gallaudet, president of what is now Gallaudet College. He became principal of the preparatory school in this college and continued to hold this position until the beginning of the school year 1910.

DENT, FRANCIS. American Roman Catholic priest and writer, died November 20, 1910. He was born in Mulligan, Ireland, in 1840, and came to the United States with his parents at the age of nine years. He attended St. Francis Academy and was graduated from the College of the Franciscan Monks. After his

ordination he engaged in mission work among the Italians in New York City. He later was appointed Father Superior of the Franciscan Home at Winsted, Conn. He afterwards had charge of a church in Hartford. In 1878 he went to Rome, where he remained until 1906. He was the author of several books on religious subjects, one of which *The Temporal Domain of the Popes in the Divine Plane* won leather seals from Popes Leo and Pius.

**DENTAL COLLEGES.** See UNIVERSITIES AND COLLEGES.

**DENTAL EDUCATION.** See UNIVERSITIES AND COLLEGES.

**DENUDATION OF LAND.** See GEOLOGY.

**DENVER.** See MUNICIPAL OWNERSHIP.

**DEPARTMENT OF AGRICULTURE.** See AGRICULTURE.

**DEPARTMENTS OF UNITED STATES GOVERNMENT.** See UNITED STATES.

**DEPENDENT CHILDREN.** See CHARITY ORGANIZATIONS.

**DEPOSITS.** See BANKS.

**DEPOSIT GUARANTEE.** See BANKS.

**DESCAMPS, BARON.** See BELGIUM, *History*.

**DESERT LAND.** See IRRIGATION.

**DESIGN, NATIONAL ACADEMY OF.** An institution of artists and sculptors, founded in 1825. With it has been combined in 1906 the Society of American Artists. The society includes academicians and associates. The aim of the Academy is to further the arts of design and since its foundation it has maintained schools with that object in view. Its schools are free to accepted students, the only limitation being that none but students who expect to follow art as a profession and who are under thirty years of age are eligible. The atelier system, by which each student remains under the direction of the same instructor during his entire course is in force except in special classes. The schools are in session from the beginning of October until about the middle of May of each year. At the annual winter exhibition of the Academy various prizes and medals are awarded. The Carnegie prize of \$500 awarded for the most meritorious oil painting in the exhibition by an American artist, portraits only excepted, was awarded in 1910 to William S. Robinson for his painting entitled "Golden Days." The Thomas R. Proctor prize for the best portrait in the exhibition was awarded in 1910 to Douglas Volk. The Isidor Memorial medal for the best figure composition painted by an American artist was awarded to Kenyon Cox. The Helen Foster Barnett prize for the best piece of sculpture shown in the winter exhibition, the work of an artist under 30 years of age, was awarded to Abastemia St. Leger Eberle. A description of the most notable pictures of the exhibition will be found in the article PAINTING. The Academy has made an effort for several years to obtain more satisfactory headquarters. A project was proposed in 1909 to erect a building in Central Park, New York, but public sentiment was against the idea and it was abandoned. At the end of 1910 suggestions were made that the city give the Academy the right to erect a building in Bryant Park, but nothing was done in furtherance of this proposition before the year closed. The officers in 1910-11 were as follows: President, John W. Alexander; vice-president, Herbert Adams; corresponding secretary, H. W. Watrous; recording secretary, C. C. Curran; treas-

urer, Francis C. Jones. These with Edwin H. Blashfield, Frederick Dielman, Cass Gilbert, Frederick W. Kost, Kenyon Cox, and Frederick Ballard Williams form the Council of the Academy.

**DES MOINES, IOWA.** See INITIATIVE AND REFERENDUM and MUNICIPAL GOVERNMENT.

**DETROIT, MICH.** See CIVIL SERVICE.

**DETROIT RIVER TUNNEL.** See RAILWAYS.

**DE VRIES'S THEORY.** See BIOLOGY, paragraph *Unit Characters*.

**DE WEINDEL, H.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**DEWEY, JOHN.** See LITERATURE, ENGLISH AND AMERICAN, *Philosophy and Religion*.

**DEWING, OLIVER M.** An American physician, died March 15, 1910. He was born in Wilton, Conn., in 1862, and graduated from the New York College of Physicians and Surgeons. After practicing for a short time, he became a member of the medical staff of the Insane Asylum on Ward's Island, New York City. He was later appointed superintendent of Kings Park State Hospital, and after practically building up that institution, was transferred to the State Hospital at Flatbush. He was an authority on mental diseases and wrote extensively on the subject.

**DEXTER, HENRY MORTON.** An American clergyman, historian and editor, died October 29, 1910. He was born in Manchester, N. H., in 1846, and graduated from Yale College in 1867 and from the Andover Theological Seminary in 1870. From that year to 1873 he traveled abroad. He was ordained to the Congregational ministry and from 1873 to 1878 was pastor of the Union Church at Taunton, Mass. From 1878 to 1891 he was editor of the *Congregationalist*. In the latter year he relinquished his editorial work to devote his time to historical research and writing. He made many trips to England and Holland and was especially interested in the history of the Pilgrims and of the early American colonies. He was secretary and treasurer of the Committee of the National Council of the Congregational Churches of the United States, which, in 1891, erected and dedicated a bronze memorial tablet to John Robinson in Leyden, Holland. Among his published works are, *The Story of the Pilgrims, and England and Holland Pilgrims* (1905). He also contributed to magazines on historical subjects.

**DIARRHŒA.** See VITAL STATISTICS.

**DIAZ, PORFIRIO.** See MEXICO.

**DICKINSON, F. A.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**DICKINSON, J. M.** See PHILIPPINES.

**DIEGUENO.** See ANTHROPOLOGY AND ETHNOLOGY.

**DIETETICS.** See FOOD AND NUTRITION.

**DIRECT ELECTION OF SENATORS.** HISTORY OF THE MOVEMENT. Though the direct election of Senators was advocated in the constitutional convention of 1787, the honor of making it a live topic seems to belong to Andrew Johnson of Tennessee. He urged a constitutional amendment to this end in 1851 and in 1852 when a Representative, and as Senator just before the outbreak of the Civil War, and as President in two messages. Besides his messages, the subject was brought before Congress in nine resolutions between 1787 and 1872, of three of which Johnson was the author. When urged by James Wilson in the constitutional conven-

tion, the direct election of Senators received scarcely any support, as the present Senate report points out, though Mr. Wilson was admittedly one of the ablest men in the convention. The idea slept until 1826, when State constitutions and State governments as well as the Federal government were becoming more democratic. In that year a resolution was offered in the House of Representatives. It came up a second time in 1835, but was not urged again until 1850, when Senator Jeremiah Clements, of Alabama, offered a resolution providing for this change. After the reconstruction period the movement for direct elections became more persistent. No less than six resolutions for the necessary constitutional amendment were offered in each of the Forty-ninth and Fiftieth Congresses and in the first session of the Fifty-second there were twenty-five resolutions. The movement had its first success in the House of Representatives on January 16, 1893, when by a two-thirds vote a resolution for a constitutional amendment was sent to the Senate. The Fifty-seventh Congress in 1902 also gave a large majority to a similar resolution, the Fifty-third, Fifty-fifth and the Fifty-sixth having approved it by smaller majorities. In the Fifty-fourth Congress, on March 23, 1896, the change was favorably reported in the Senate, but was smothered in apathy or hostility.

This history of the movement for direct elections of Senators has been compiled by J. W. Perrin, who discusses the subject without taking sides in the *North American Review* for December, 1910. The demand for the amendment has become nation-wide during the last ten years. Mr. Perrin mentions the referendum votes on the subject in California and Illinois. In the former State 187,953 votes were cast for the amendment and only 13,342 against it. In Illinois a similar amendment received 451,319 votes and only 76,975 against it.

**PRESENT STATUS.** In December, 1906, delegates of twelve States met in Des Moines at the summons of Governor Cummins and adopted resolutions calling on the States to take steps to bring about a constitutional convention, seeing that the Senate had regularly suppressed resolutions for submitting an amendment to the States. A constitutional convention was deprecated in the Des Moines meeting and resolutions as a dangerous experiment, nevertheless with favorable action on the part of four more State legislatures Congress will be compelled to call a second constitutional convention to frame a constitutional amendment providing for the election of United States Senators by direct vote of the people. The following is a roll of the twenty-seven States that have made the demand: Alabama, Arkansas, Colorado, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Montana, Missouri, Nebraska, Nevada, New Jersey, North Carolina, Oklahoma, Oregon, Pennsylvania, South Dakota, Tennessee, Texas, Utah, Washington, and Wisconsin. California and Wyoming have asked Congress itself to frame an amendment. These States only need to restate their demand. Georgia is fully committed to the principle, and a year ago Massachusetts came within a very few votes of adding its mandate, and final action will undoubtedly be taken this winter by the newly elected progressive legislature of that State. It is also believed likely that the legislatures of the States

of Maine, Ohio, and New York will speak in the winter of 1910, which will be more than sufficient. A bill was introduced in the 61st Congress, and the indications at the close of 1910 were favorable for its passage.

**DIPHTHERIA.** See ANTITOXIN.

**DIPLOMATIC RELATIONS.** See UNITED STATES, *Foreign Relations*.

**DIPLOMATIC SERVICE.** See UNITED STATES.

**DIRECT FIRE ALARM SYSTEM.** See FIRE PROTECTION.

**DIRECT NOMINATIONS.** See NOMINATION REFORM.

**DIRIGIBLE BALLOONS.** See AERONAUTICS.

**DISCOVERY.** See POLAR RESEARCH AND EXPLORATION.

**DISEASES.** See MEDICINE.

**DISEASES, OCCUPATIONAL.** See OCCUPATIONAL DISEASES.

**DISTRICT OF COLUMBIA.** See UNITED STATES.

**DITCHFIELD, P. H.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**DIVIDENDS, RAILWAY.** See RAILWAYS.

**DIVORCE.** See NATIONAL CIVIL FEDERATION.

**DIX, JOHN A.** See NEW YORK.

**DOCKS AND HARBORS.** Improvements of existing harbors and quays, as well as the inception of new works in various seaports are to be noted during the past year and as usual there was more work of this kind in progress in Europe than in America.

**BROOKLYN.** At Brooklyn, N. Y., the Bush Terminal was put into use, complete, and fully equipped for receiving and storing direct from freight car or boat, in lofts, all kinds of goods and raw materials. It is of equal advantage for outgoing shipments. A city of the character and extent of greater New York is too congested to allow economical transport of goods in wagon or truck loads through its streets; and the Bush Terminal, by providing large manufacturing or storage buildings on the water-front at South Brooklyn, enables shippers to bring a car or lighter to the building where the articles to be forwarded are packed or assembled at a minimum cost for transportation and insurance.

**DOVER.** In Great Britain, at Dover, a new landing-stage was built for the cross-channel traffic, just adjoining the Admiralty Pier. This work is 780 feet long, built of stone and concrete, and cost £50,000, nearly \$250,000. In connection with this, a sea-wall was under construction at the outer end of the pier, behind which a space of 11 acres was being reclaimed to be used as a site for a station to be built by the railways.

**BELFAST.** At Belfast, Ireland, the waterway was being enlarged to permit the safer launching of large ships. At the entrance to the port, West Twin Island was to be removed, which would leave a basin in which vessels up to 950 feet in length could be turned. This part of the improvement was estimated to cost £10,000 or almost \$50,000. The river was to be dredged so as to widen the channel at bottom to 400 feet at a depth of 32 feet. The dredged material was to be used to form an embankment and reclaim 72 acres along shore. A new graving dock that was under construction for seven years, was finished and is one of the largest in the British Empire. The total available length is 886 feet, width of entrance 96 feet, and depth at the centre 37 feet below the level of high tide. The pumping plant installed with it is of 3000 horse-

power and can empty the dock in one hour and a half.

**LIVERPOOL.** At Liverpool, the bar at the mouth of the Mersey is being dredged so as to give a channel 2100 feet wide and 32 feet deep at low water. During the year 1910 there were 18½ million tons of sand removed.

**SOUTHAMPTON.** At Southampton, a 16 acre wet dock was building to accommodate the largest ships in the transatlantic service. It is 1700 feet long, 400 feet wide, and has a depth of water of 40 feet at low tide.

**BORDEAUX. ST. NAZAIRE.** In France, at Bordeaux, a dry-dock was built that had an available length of 594 feet and is 108 feet wide at the entrance. A number of fair-sized vessels are built here, and the dock is of great advantage to the port. Farther up the coast, at the mouth of the river Loire, there is a very important shipbuilding yard at St. Nazaire. Here the new transatlantic liners *La France* and *Rochambeau* were built, as well as some of the largest warships of the French navy. A dock crane, movable on a track, was built and put in use at the fitting-out dock. It is electric motor driven and has a capacity of 150 tons. A dry-dock was completed having an available length of 738 feet, 98 feet wide on the bottom, and 115 feet wide at the entrance.

**SOUTH AFRICA.** There was completed a large dry-dock and work-shops at the Cape of Good Hope, Africa. The yard and shops are completely equipped to repair and fit out large vessels, and the Selborne dock is very large and of massive construction.

**NEW ZEALAND.** At Auckland, New Zealand, the so-called Queen's Pier was rebuilt and enlarged, the material used being reinforced concrete, which is about the only available thing that will resist the ravages of the teredo in these waters. Wooden piling is destroyed in a few months' time, in spite of the fact that attempts have been made to lengthen its life by the use of creosote and other preservatives.

**MEXICO.** In Mexico, one of the largest undertakings in harbor improvement was at the port of Manzanillo on the west coast, 500 miles south of Mazatlan and about half way between San Francisco and Panama. This place has a large shipping trade and is connected with the interior table-land of Mexico by railways. It has a large export grain traffic furnished in this way as well as important commerce of other kinds. The exposed situation of the town, however, made it necessary to build a breakwater of massive construction, behind which the harbor has been dredged and a sea-wall built, forming the basis of future improvements that will include the building of extensive piers and warehouses to accommodate the business and traffic that may reasonably be expected to follow the opening of the Panama Canal. The breakwater extends 1489 feet out into the Pacific, at such a location with respect to the coast line that the waves strike it at an angle of 36°, instead of 90°. From a quarry a few miles away, large granite blocks weighing from 30 to 60 tons were transported on a railway line built for the purpose, and laid down to form the base and foundation for this great wall. On the outer surface, next to the sea, concrete blocks, made in sizes of about 30 tons weight were laid, and on this a concrete cap was applied which forms a monolith of the full length of the breakwater, 27 feet wide and 12 feet high. At the base, the

wall is 315 feet wide, and owing to the depth of water at that place the whole structure is 87 feet high from base to crown. The harbor thus formed has been dredged to a uniform depth which even alongside the wharves is 28½ feet at low water.

The sea wall referred to above is 6133 feet long, built of granite and concrete; and behind this a large area is now being reclaimed by filling in the material dredged out of the harbor. A short distance back from the shore and too near the town there was a malarial, mosquito-breeding lake or swamp called the Cuyutlan Lagoon. This is now being drained by the construction of a ditch or sluiceway that is expected to put an end to this menace to the health of the community. These improvements have been going on for about twenty years, and are an evidence of the liberal policy of the Mexican Republic towards the development of trade and commerce.

**CONSTANTA.** At the Rumanian port of Constanta, or Kûstenje, on the northwestern shore of the Black Sea, some interesting and important improvements are now about completed. This is a very prominent port, and situated as it is, near the mouth of the Danube, the facilities for shipment of various commodities have been increased by the installation of the most modern types of elevators and bulk conveyors. Of the entire exports about 85 per cent. consist of grain, petroleum, and lumber. Two storehouses for grain, holding together about 2,600,000 bushels, are served by a belt conveyor running in an elevated structure on the dock front for a distance of 1870 feet. This conveyor can transfer 200,000 bushels of grain from cars to the bins or from a vessel to the bins in one hour.

For petroleum and its products 25 storage tanks are provided, each tank holding about 176,000 cubic feet of oil. The oil is received in cars that are pulled up an incline to an elevated track 110 feet above the docks and a valve with hose connection is provided at intervals of 10 feet in a pipe line laid along the track on which the cars stand. This pipe leads to the tanks and is supplied with suitable branch-pipes and stop-valves in order that any one of the tanks may be filled as required. A central generating station supplies direct current on the three-wire system at 220-440 volts. The prime mover is a 400 horse power Diesel engine using crude petroleum. All hoisting, unloading and conveying machinery is operated by direct current 440 volt motors; while the illumination of the docks and buildings is from the 220 volt circuit. The wharves and conveyors have been laid out on so liberal a scale that five large ships can load grain at one time.

The harbor itself is formed by three large breakwaters built of stone and concrete blocks, forming two harbors or basins of 35 and 148 acres extent, respectively, and the depth of water at low tide is from 26 to 30 feet.

**FLOATING DOCKS.** In 1910 the Vickers, Sons & Maxim Co., of Barrow-in-Furness, completed a large floating dock for the use of the Brazilian Navy for raising battleships. A dock of 6410 tons capacity was built for Liverpool by Swan, Hunter & Wigham Richardson, and one of 4000 tons was constructed for Berlin by the Messrs. Hamilton of Port Glasgow.

**DODGE, THOMAS H.** An American inventor and philanthropist, died February 12, 1910. He was born in Eden, Vt., in 1823. He was

the inventor of the cylinder printing press and for many years conducted a patent attorney's office. He acquired considerable wealth through inventions, chiefly in cotton machinery.

**DOLBEAR, AMOS EMERSON.** An American educator and inventor, died February 23, 1910. He was born at Norwich, Conn., in 1837, and graduated from the Ohio Wesleyan University in 1866. For several years following his graduation he was an assistant in chemistry at this institution, and was later professor of chemistry, holding this position until 1874, when he became professor of physics at Tufts College, where he remained until he was forced to retire on account of ill health in 1902. He perfected many notable inventions, including writing telegraph in 1864, magneto telephone in 1876, static telephone in 1879, and photographing with electric waves. Professor Dolbear claimed to have invented wireless telegraphy and in 1899 brought suit against William Marconi. He also claimed priority in the invention of the telephone, and for many years contested in the courts of the legality of the Bell patents, but was finally defeated. He was twice mayor of the city of Bethany, W. Va. Among his published writings are the following: *Chemical Tables; Art of Projecting; The Speaking Telephone; Matter, Ether and Motion; Modes of Motion; Natural Philosophy*, and many articles in scientific journals and the magazines.

**DOLLIVER, JONATHAN PRENTISS.** United States Senator from Iowa, died October 16, 1910. He was born in Preston county, West Virginia, in 1858 and graduated from the University of West Virginia in 1876. He studied law and in 1878 was admitted to the bar and opened a law office in Ft. Dodge, Ia. He was elected to the 51st Congress in 1889 and was re-elected to successive Congresses until 1901. In 1900 he was appointed United States Senator to fill the unexpired term of Senator John H. Gear. He was elected for the terms 1901 to 1907 and 1907 to 1913. Senator Dolliver was one of the most effective orators in the Senate. During the first years of his service he was identified with the conservative element first in the House and later in the Senate. In the Senatorial fight made by Albert B. Cummins against William B. Allison in 1908, Senator Dolliver supported Senator Allison, who was a strong exponent of party regularity. Senator Cummins later succeeded to the senatorship upon the death of Senator Allison and soon after Senator Dolliver became identified with the "insurgent" Senators, and he and Senator Cummins were perhaps the most aggressive opponents of the tariff and other policies of the Administration. In the Senate in the sessions of 1909-10 his speeches against the Payne-Aldrich tariff bill were considered by many to be the most effective and striking delivered against that measure. Senator Dolliver was an expert on tariff matters, for as a member of the House Committee on Ways and Means, in 1897, he was one of the framers of the Dingley tariff bill and he was the chief speaker in the House in support of that measure. To the charge of inconsistency made as a result of his antagonism to the Payne-Aldrich bill he invariably replied with the assertion that he was young in 1897. Senator Dolliver first attracted attention as an orator during the Blaine campaign of 1884. He was regarded as one of the finest speakers in public life. His death was largely the result of

overwork, especially in the congressional sessions of 1910.

**DOMESTIC RELATIONS COURT.** See NEW YORK, *Legislation*.

**DORCHESTER, LADY.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**DORR, R. C.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**DOUBLE RED CROSS.** See TUBERCULOSIS.

**DOMINICA.** An island of the British West Indies; one of the presidencies of the Leeward Islands (q. v.). Area, 304½ square miles. Population, 28,894. Births (1908), 1283 (754 illegitimate); deaths, 846; marriages, 144. Primary schools, 24, with 4806 pupils; government grant, £2232. Cultivated area, unascertained; sugar-cane, cotton, cacao, and limes are grown. Imports (1908), £153,114 (from Great Britain, £65,365; British colonies, £37,405; other countries £47,881; internal trade, £2463). Exports, £112,013 (to Great Britain, £58,971; British colonies, £8652; other countries, £41,770; internal trade, £2620). Tonnage entered and cleared, 746,640. One post-office. Revenue and expenditure for the year 1908-9, £40,500 and £36,541 respectively. Debt, March 31, 1909, £65,000. Administrator (1910), W. Douglas Young.

**DOMINICAN REPUBLIC.** See SANTO DOMINGO.

**DONOHUE, CHARLES.** An American jurist, died April 17, 1910. He was born in New York in 1825, and attended Columbia College grammar school. He began the study of law and was admitted to practice at the bar. He was elected Supreme Court Justice in 1874. He specialized in maritime law, and with the coming of the Civil War took up revenue cases, still doing much of his work in the United States courts and appearing frequently before the United States Supreme Court. At the close of the war he became active in local politics and was identified with Tammany Hall. He left the bench in 1889.

**DOVER DOCKS.** See DOCKS AND HARBORS.

**DOWDEN, JOHN.** A bishop of the Scottish Episcopal Church, died January 26, 1910. He was born at Cork, Ireland, in 1840, and was educated at Queen's College, Cork, and Trinity College, Dublin. He was consecrated priest in 1865. He was Donnellan lecturer at Dublin University in 1884, and was Select Preacher at that University in 1886, 1894, and 1895. After having served as curate and rector in several churches he became Pantonian Professor of Theology and Canon of St. Mary's Cathedral in Edinburgh. He was appointed bishop of Edinburgh in 1886. Among his published writings are the following: *The Celtic Church in Scotland; History of the Theological Literature of the Church of England; and The Workmanship of the Prayer Book*. He also edited the *Correspondence of the Lauderdale Family with Archbishop Sharp*.

**DRAINAGE. PROGRESS—1910.** In the United States the year 1910 witnessed greater activity in the improvement and reclamation of land by drainage and protection from overflow than any preceding year. It is estimated that drainage works under construction in 1910 in the United States will reclaim an area of 4,000,000 acres. The greater part of this is in the Mississippi River Valley in southeastern Missouri, Arkansas, Mississippi, and Louisiana, and in the Florida Everglades. Considerable areas

of swamp land in the South Atlantic States also are being reclaimed under State drainage laws, taxing the lands benefited for the cost of the work, usually in proportion to the benefits received. The lands are organized into drainage districts which sell bonds, build the works, and levy and collect the taxes to provide maintenance, interest, and sinking funds. The greatest activity in the drainage of farm lands to increase their productivity is in the upper Mississippi Valley, notably in Iowa. It is estimated that 2,000,000 acres in that State alone have been tilled during the year 1910. There is much activity in this line in Illinois, Indiana, and Kentucky, and also in New York and North and South Carolina in the East. This work is done under drainage districts, also, the districts building the outlets and the farm owners putting in the drains on their own farms.

**BREAKING UP HARDPAN.** In the western part of the United States, where irrigation is practiced, there has been a considerable extension of drainage to prevent the accumulation of surplus water from irrigation, and more especially for the removal of alkali from irrigated lands. In irrigated lands there is a tendency to the formation of a hardpan which prevents the circulation of the water through the soil, preventing proper drainage, thus aggravating the accumulation of alkali. Experiments made by the U. S. Department of Agriculture in California have demonstrated the effectiveness of blasting to break up this hardpan and allow the water used in irrigation to pass down into drains and leach out the injurious salts. These experiments show the possibility of reclaiming large areas which have hitherto failed to respond to efforts for their reclamation.

**NOVA SCOTIA.** The department of agriculture of Nova Scotia has under consideration a scheme for assisting the farmers of that province in draining their lands. Under this scheme the government is to make the plans and advance the money for the work. The farmer is to pay 7 per cent. of the cost of the drainage each year for about 25 years, when the work will be paid for. This plan is similar to that adopted by the Australian and New Zealand governments for aiding farmers in improving their lands.

**BELGIUM.** The Belgian government, also, is extending aid to the reclamation of wet lands. Where the principal object of the work is improvement in sanitary conditions the government is meeting the cost of the work. Where the object is improvement in agricultural conditions, the land owners must pay for it. This is similar to the work being done by the Italian government, under the law making large appropriations for aid to drainage for a long series of years ending in 1933.

**OTHER FOREIGN COUNTRIES.** The agricultural department of Iceland is experimenting in the reclamation and use of the great bogs of that country, which comprise about one-seventh of the entire area. So far, these experiments have not been successful. In Norway a society organized in 1902, for the purpose of promoting the reclamation of marsh lands, is engaged in making plans for the drainage of swamps, in conducting demonstrations, and in giving lectures on the subject. It is encouraging private initiative in every way possible. A Chinese syndicate is experimenting in reclaiming large areas of swamped and alkali lands in China, where an area of 140,000 acres of

badly alkali lands has been drained as an experiment. There are millions of acres of similar lands which can be reclaimed in the same way, and it is probable that this will prove to be the beginning of a great movement for the control of Chinese rivers and the reclamation of the lands overflowed by them. The great schemes for rehabilitating the valleys of the Tigris and Euphrates include the protection of lands from overflow, as well as irrigation, and some of this work was undertaken in 1910.

Throughout the world there is great activity in extending agricultural production. The greatest opportunities for extending cultivated areas lie in the lines of irrigation and drainage, and there is rapid progress in both lines everywhere.

**DRAINAGE, CANAL.** See **CANALS.**

**DRAMA.** Probably the keenest interest in dramatic affairs in the United States, during 1910 centered in the doings of the New Theatre of New York, the opening of which was the great event in the record of the previous year. The theatre was built at a large cost by a company of rich men whose ambition was to make it stand in this country for what the Théâtre Français represents in France and the Burg Theatre in Austria—a house which should set the standard of stage work. While the establishment was expected to pay its way, artistic rather than commercial success was to be the supreme aim. Mistakes have of course been made during the New Theatre's first year. A few plays have proved of no value, artistically or otherwise. While the stock company was away the house has been opened to outside organizations that have not helped its prestige. But upon the whole the directors of the enterprise have reason to congratulate themselves. There have been rumors to the effect that they are dissatisfied with the financial results and that the theatre itself has been found unsuited for comedy. Nevertheless what is done in the New Theatre has come to be recognized as something which playgoers in New York and the thousands from other cities must take into serious account. All that it does has been inspired by sincerity and a worthy aim. The stock company of the house comprises such excellent people as Miss Edith Wynne Matthison, Miss Rose Coghlan, Miss Jessie Busley, Mrs. Sol Smith, Miss Olive Wyndham, Messrs. A. E. Anson, Louis Calvert, Robert Bruning, Ferdinand Gottschalk, E. M. Holland and Frank Gillmore.

Early in the year *The Witch*, a gloomy play from the German of Wiers-Jensen, was produced with Mme. Bertha Kalisch, an actress of some power, in the leading rôle. It was too sombre. Another of the failures in this house came later when Miss Olga Nethersole and her own company presented Maeterlinck's *Mary Magdalene*. *Sister Beatrice*, also by the Belgian poet, had previously proved of much value. It is a so-called miracle play, in which a nun who forgets her vows is replaced for years in the convent life by the Virgin, who comes down from the altar for that purpose. When the erring sister returns, penitent and broken in spirit and body, the Virgin resumes her place. Miss Matthison in the title rôle gave a performance of admirable dignity and sweetness. Among the actors invited during the year to appear as guests with the New Theatre Company was Miss Annie Russell, who played as



**KATE DOUGLAS WIGGIN**  
(Mrs. George C. Riggs)



**JOSEPHINE PRESTON PEABODY**



**EDMOND ROSTAND**



**MAURICE MAETERLINCK**

**FOUR PLAYWRIGHTS PROMINENT IN 1910**

1900

Viola in *Twelfth Night* with Mr. Oswald Yorke as Malvolio and Mr. Calvert as Sir Toby.

The new Theatre's second year opened with Maeterlinck's fairly phantasia, *The Blue Bird*, an allegory of decided charm that filled the house for many weeks and was afterwards transferred to another theatre where it ran for several months. It is a tale in which children in quest of the Blue Bird, the symbol of happiness, have many fantastic adventures, most of them delightful by reason of the imagination displayed. A revival of Shakespeare's *Merry Wives of Windsor* proved to be rather lacking in the unctuous humor needed for the famous old farce. Neither Mr. Calvert, who played Falstaff, nor Miss Matthison, the Mistress Ford, nor Miss Rose Coghlan, the Mistress Page, seemed quite to catch the robust spirit essential to an effective performance of this classic frolic. Some of the stage pictures were admirable, but the performance needed distinction and could hardly be compared with the best of those of years ago in which the stage trappings were less pretentious.

Another New Theatre revival of some interest but again not wholly worthy of the house, was that of Meyer-Foerste's *Old Heidelberg*, a play first done here ten years ago in the original German and afterwards used by Mr. Mansfield, Mr. Boucicault and others. Mr. Frank Gillmore suggested fairly well the young man whose temporary escape from the etiquette of a petty German court to the student life of Heidelberg makes the play; and Mr. Gottschalk was admirable as the valet, Lutz. In other respects it has been better done in the past. But the stage pictures, the student revels, etc., were capital. Miss Jessie Busley was hardly adequate as the little maid with whom the young prince falls in love.

By all odds the best achievement of the New Theatre during 1910 was its production of Sir Arthur W. Pinero's picture of middle class English life, *The Thunderbolt*, produced in November. The play is not exactly a pleasant one. It shows the grasping avarice of a set of miserable people who seize their chance to despoil a girl of her rightful inheritance. When the plot is foiled by the discovery of a dead man's will—which incident constitutes the thunderbolt—the whole crew of vultures, male and female, become fawning supplicants. There is not much action, but dialogue of remarkable quality. At least a dozen parts require good work and the New Theatre Company covered itself with credit. The ensemble scenes, such as that which opens the play, a meeting of the heirs of the rich man and a discussion of the situation, was done with a perfection of detail that suggested the best work on the French and German stage. Mrs. Dellenbaugh, Miss Lawton, Miss Wyndham, Messrs. Calvert, Gottschalk, Bruning, Holland and Gillmore all deserve mention. A Shakespeare revival of some interest was *The Winter's Tale*, in which Miss Matthison appeared to advantage as Hermione, giving a portrayal of rare artistic grace and tenderness.

For purposes of record the production in the New Theatre of *Beethoven* may also be noted, although it was not done by the stock company. The play is a fantastic sketch from the French of René Fauchois, of suppositious incidents in the life of the great composer. Donald Robertson played the part of Beethoven and musical

excerpts from the nine symphonies and other works of the Bonn master were used with taste. The only Shakespearian revivals of any importance outside of the New Theatre were those made by Mr. E. H. Sothorn and Miss Julia Marlowe, who played for a month or more in their regular repertory, adding to it a production of *Macbeth* that deserved praise. Neither Mr. Sothorn as Macbeth nor Miss Marlowe as Lady Macbeth attained great heights, but they were sincere.

Of the serious plays of the year outside of the New Theatre one of the strongest, if also the most unpleasant, was Pinero's *Mid-Channel*, an English success in which Miss Ethel Barrymore appeared in this country. An acknowledged master of technique, the British playwright showed that he had lost none of his cunning. It is a sordid tragedy relating, sometimes with needless and repellant veracity, the story of a man and woman tied together without bonds of intellectual or sentimental sympathy. He is coarse, dull, dictatorial. She, more sensible of a void in their life, seeks relief in dissipation. Death ends a problem which was hopeless from the first. Except for occasional flashes of cynical wit, the atmosphere of the piece is one of unmitigated depression. Yet it is realism portrayed with dramatic power. It leaves a disagreeable flavor behind but is not apparently written for the sake of sensation only. Miss Barrymore, who played with little artistic restraint, showed that she has a capacity for emotional work of which she had heretofore given no hint. At the close of the year this actress was seen in pleasanter circumstances in a revival of the same author's amusing comedy, *Trelawney of the Wells*, playing the part of Rose with sincerity if no brilliancy.

A play entitled *The Faith Healer*, the last work of the late William Vaughn Moody, was presented by Henry Miller and failed, despite its excellent literary qualities, to impress the public. It dealt with the attempts of a wandering zealot to heal the sick by mental power. When this fanatic falls under the spell of an earthly love, he fancies that the power to cure deserts him. Although there are scenes of interest in the play, which suggests in atmosphere Björnson's *Beyond Human Power*, a drama of far greater weight, the general effect was depressing. Its main purpose, the instillation of a belief in the possibility of modern miracle, was hardly achieved. Also somewhat depressing was Mrs. Minnie Maddern Fiske's revival of Hauptmann's dream play, *Hannele*, often done here in German with beautiful effect. Notwithstanding Mrs. Fiske's sincerity and artistic instinct this actress was temperamentally unfitted for the mystic character sketched by the poet. The part, that of a workhouse waif who in dying sees all the glories of life that she has missed, requires a simplicity of treatment that Mrs. Fiske hardly suggested. A revival of Ibsen's *Pillars of Society* enabled Mrs. Fiske and her company to do better work and a little play from the German of Arthur Schnitzler called *The Green Cockatoo*, depicting incidents upon the night of the fall of the Bastille, proved to be a curtain raiser of uncommon interest.

Another Ibsen play was *Little Eyolf*, with which Mme. Nazimova opened a new theatre named after her. The Russian actress played the part of Rita Allmers, an abnormal creature,

like so many of the Ibsen fold, and perhaps a fit subject for an alienist, with fine touches. The idea of a mother who hates her child as a possible barrier between her and the man she loves is repellent and could not be sufficiently glossed by good acting to make the play other than unpleasant and a befuddling assemblage of weird impressions. Those persons who have studied the play as well as those who saw it acted must have remained much in the dark as to its meaning. There is a monstrous side to the woman Rita, but she also calls for pity, both aspects finding expression in Mme. Nazimova's performance. The actress had efficient support from Mr. Brandon Tyan, who played Allmers and from Miss Ida Conquest as Asta.

In the way of lachrymose agony a translation of Alexandre Bisson's *La Femme X*, produced in America as *Madame X*, delighted those play-goers who love to weep. An unfortunate woman whose life has been all that it should not be is brought to the bar of justice with her own son as her counsel. It is a melodrama of skillful construction in which the agony is laid on without stint. The better the acting the more painful it becomes. Miss Dorothy Donnelly's portrayal of the hopeless outcast received much critical commendation, and Mr. William Elliott did good work in the part of the son. Also an intense play, but calling for no deluge of tears, was Charles Klein's drama, *The Gambler*, based upon financial rascality. A bank president uses the money of his depositors in fighting other bankers who hope to ruin him. He goes to jail as the curtain falls, but carries with him the sympathy of the fair-minded persons in the play. Mr. George Nash in the leading part, Mr. Charles Stevenson and Miss Jane Cowl distinguished themselves. Mr. Theodore Robinson, one of the most competent veterans of the stage made something out of a dramatization by Eugene Presbery of Rex Beach's novel, *The Barrier*. The play follows the story pretty closely. The scenes are laid in Alaska and local color is happily used.

Still another drama that had much success was *Alias Jimmy Valentine*, in which H. B. Warner played the part of a reformed burglar who, when it comes to a question of showing his skill in opening safes and thereby denouncing himself or allowing an imprisoned girl to die, opens the safe and of course wins more than he loses. Mr. Warner played with such picturesque force as to keep the drama running for a whole season and will probably continue to play it for many seasons to come. Mrs. Leslie Carter found an opportunity in *Two Women*, taken from the Italian by Rupert Hughes, to play the dual part of saint and sinner. In the first part of the drama a saintly young wife dies; the husband, an artist, finds in an outcast the physical counterpart of the woman he has lost and succeeds in the work of regeneration. The public failed to find the process interesting. Sir Arthur Conan Doyle's *The Speckled Band* was a melodrama of the Sherlock Holmes stripe that left its admirers thrilled.

Other serious plays that need be mentioned for purposes of record only were Mrs. Patrick Campbell's production of Bataille's *Vierge Folle*, which she did as *The Foolish Virgin*; an adaptation of the same author's *La Scandale*, in which Kyrle Bellew appeared, and a picture of fast London life by Henry Arthur Jones called *We Can't Be as Bad as All That*. None

of these plays was of more than passing interest. There were, also, *The Deserters*, by Robert Peyton Carter, in which Miss Helen Ware made a pleasant impression; *Mother*, a pathetic sketch of homely life by Jules E. Goodman, in which Miss Emma Dunn succeeded; Eugene Walter's *Just a Wife* that gave Miss Charlotte Walker an indifferent chance to show her graceful self; and Mr. Lawrence Irving's production of *The Three Daughters of Monsieur Dupont*, a remarkable study of middle class French life by M. Brieux. Another play of foreign origin, *The Whirlwind*, from the French of Henri Bernstein's *Baccarat*, served for the debut of Mme. Marietta Olly, a Viennese actress who showed sound technical training.

In the field of light comedy and farce one of the popular plays of the year was a dramatization of Mrs. Wiggin's *Rebecca of Sunnybrook Farm*, a little sketch nicely done by Edith Taliaferro in the title rôle. Miss Marguerite Clark in *Baby Mine*, by Margaret Mayo, also pleased the public in a farcical series of adventures turning upon the necessity of providing at least one baby for an anxious father who finds that instead of one he seems to be responsible for three. *Mrs. Dot*, another comedy by the prolific Englishman, W. Somerset Maugham, afforded Miss Billy Burke an opportunity to show the limitations of her artistic powers. But in this as well as in a later production, *Suzanne*, her unquestioned beauty and ingratiating mannerisms counted for something. Neither comedy was of importance. Of more significance was *The Inferior Sex*, by Frank Stayton. A rich woman-hater who has fled to sea on his yacht in order to get away from women and write a book on the inferior sex, picks up a small boat containing a girl and has to keep her aboard for a week with the result that when she finally goes, he follows. The little play has some bright dialogue and was nicely done by Miss Maxine Elliott and Mr. Arthur Byron.

From the German came *The Concert*, the clever study of an irresponsible musical genius that was admirably interpreted by Leo Ditrichstein. Louis N. Parker's *Pomander Walk* was a delightful idyl of Georgian days, more a series of sketches than a play. There were also *Love Among the Lions*, in which a promising young Englishman, A. E. Matthews, made his debut; Mr. F. Anstey's *Brass Bottle*; James Forbes's *The Commuters*; *His Humble Servant*, well played by Mr. Otis Skinner; *Nobody's Widow* by Avery Hopgood; and *Electricity*, in which Miss Marie Doro figured. From the French of MM. de Caillavet and de Flers was *Decorating Clementine*, a rather thin comedy well played by Miss Hattie Williams, G. P. Huntley and Ernest Lawford. Miss Annie Russell was seen in a little play of some merit but utter improbability called *The Impostor*. A London girl of supposedly much charm of personal manner, finding herself penniless in the street, asks a stranger to lend her a sovereign. Circumstances arise that result in this semi-outcast being received under false colors as an honored guest in an aristocratic household. The satire upon social prejudice is not without interest, but there was not enough strength in the play to hold public attention for long.

A farce that met with popular welcome was *Get Rich Quick Wallingford*, by George M. Cohan. The satire upon people who want to make



**EDITH WYNNE MATTHISON**



**ERNST RITTER VON POSSART**



**HENRY MILLER**



**WILLIAM GILLETTE**

**FOUR PLAYERS PROMINENT IN 1910**

৪৭০

much of nothing seemed to strike a sympathetic chord, notwithstanding the torrent of slang in which the ideas are expressed, or perhaps because so large a part of the play-going public understands slang better than anything else. Another satire, this time upon the Kentucky mountain feuds, entitled *The Cub*, was made amusing by Mr. Douglas Fairbanks, who, as a young reporter, plunges into the heart of a desperate feud and not only escapes with his life but carries off a bride. Miss May Irwin in a farce called *Getting a Polish* and Mr. Sam Bernard in *He Came from Milwaukee* added to the gaiety of the public which enjoys the lightest kind of entertainment. Of more ambitious character was *Mr. Preedy and The Countess*, in which Mr. Weedon Grossmith, the English comedian, was amusing.

Several revivals met with favor. Oscar Wilde's fairly clever *The Importance of being Earnest* was one, and Robertson's *Caste* another. In the latter Miss Marie Tempest's Polly and Mr. G. P. Huntley's Eccles were good enough to recall memories of years ago and make one forget how faded is the old comedy. The revival of *Trelawney of the Wells* has already been mentioned. Mr. William Gillette appeared with success in a number of plays of his own, such as *Secret Service*, *The Private Secretary*, *Too Much Johnson*, etc.

Of the foreign players who visited the United States during 1910 Mme. Sarah Bernhardt is pre-eminent by virtue of achievement and personality. At the age of 67 years and a great-grandmother, she came to play what to most women at the height of their powers would be an exhausting engagement. For weeks at a stretch in Chicago, New York and elsewhere this remarkable woman appeared sometimes ten times a week in dramas and plays requiring a tremendous expenditure of emotional force. For a month in New York she kept up the strain without showing any marked deterioration in the quality of her work. She was still able to suggest on the stage all the allurements of a woman half her age. Her technical command of her art remains as perfect as ever, and in the parts which she has made her own, such as Marguerite in *Camille*, *La Tosca* and *Fédora* she still stands without a rival. During her American engagement Bernhardt appeared for the first time in this country in *Jeanne d'Arc*, a drama by Émile Moreau, which was more curious than inspiring. It is chiefly devoted to the trial of Jeanne at the hands of her English captors. Mme. Bernhardt suggests the mystic exaltation essential to the part, but it is nothing by which she will be remembered. Another play in which she had not heretofore been seen outside of Paris was Rostand's *La Samaritaine*, a poetic fantasy having for its protagonists Christ and the woman of Samaria. Notwithstanding the sincerity and reverence with which the theme is treated, public sentiment is against such an exhibition.

A curiosity of Mme. Bernhardt's New York engagement was the production of *Judas*, a play written in English by John De Kay, an American, and translated into French. Mme. Bernhardt, who has played Hamlet and who is even said to have considered Falstaff, assumed the part of Judas, the disciple who betrayed Christ. The drama itself is a queer mixture of politics, love and religion which would be offensive if it

were not so puerile. Judas is made a fanatic who loves Mary Magdalen. When the Magdalen turns from him to follow Christ he gives way to raging jealousy and betrays his Master. Why Mme. Bernhardt should have consented to masquerade in this worthless affair remains a mystery. Her Judas, which she played in listless fashion, was almost as insignificant as the piece itself. Mme. Bernhardt gave several performances of Bisson's *La Femme X*, showing her usual skill in depicting a despairing woman. The part was originally written for her, although it fell to Mme. Réjane to play it first in Paris. Once or twice during her New York engagement Mme. Bernhardt dropped the tragic mask to appear in comedy. A most delightful treat was her performance in Zancols's *Les Bouffons* which Miss Maude Adams played here some years ago as *The Jesters*. The French actress and her company did wonders with it.

Mr. Ernst von Possart, the noted German actor and director of the Munich Court Theatre, returned to this country after an absence of many years and delighted German audiences with his admirable work in such plays as *Freund Fritz*, *The Merchant of Venice*, *Nathan der Weise*, etc.

During the year in England *The Piper*, by Josephine Preston Peabody (Mrs. Lionel S. Marks), had its first production in Stratford. This was the play which took the Stratford prize of \$1500 from 300 competitors. It is a poetic treatment of the story told in Robert Browning's well-known poem. *Grace*, by W. Somerset Maugham, struck a serious note and showed how a woman may find happiness even with a dull mate whom she cannot adore. *Nobody's Daughter*, by George Parton (Miss Symonds), was a domestic comedy of more than common cleverness. Sir Arthur Pinero's *Healer's Mystery* was a failure, and *Helena's Path*, by Messrs. Hope and Lennox, fared no better. *A Single Man*, by Hubert H. Davies, was found lacking. The ubiquitous Hall Caine tried *The Bishop's Son*, a dramatization of his "Deemster," and a melodrama called *The Eternal Question*. *Justice*, by John Galsworthy, a strong but depressing drama, made sufficient impression to cause official investigation of the legal abuses set forth. *The Fighting Chance*, a war play, won popular favor. Altogether the dramatic year in Great Britain offered little of vital importance.

FRANCE. Rostand's *Chantecler* was of course the sensation of the year in France. While the dramatic value of this fantasy in which the barnyard denizens play a drama of love and jealousy may be doubted, the beauty of the piece as literature is unquestioned. The best French critics assign it no permanent place upon the stage. The acting and the stage devices employed at the Porte St. Martin Theatre were alike admirable. At the Théâtre Français the play of the year was, perhaps, *Comme ils sont tous* (All Men are Alike), by MM. Aderer and Ephraïm, a play of which the moral is that in the matter of sentiment husbands must not be asked to give much and that wives should forgive and forget. Pierre Wolff's satirical comedy, *Marionnettes*, also seen at the Français, is based upon the familiar situation of a young girl whose simple virtues weary her husband. When she becomes a dazzling Parisian butterfly, he awakens to her charm. Bourget's *Un Cas de Conscience*, a comedy by Romain Coolus

called *Les Bleus de l'Amour*; *Le Petit Dieu*, by Louis Artus; *L'Imprévu*, by Victor Margueritte; and Mlle. Leneru's philosophical drama, *Les Affranchis* were some of the other French plays of the year that attracted notice.

Also to be noted are Alfred Capus's *L'Aventurier*, the story of a self-made man who conquers social prejudice; Tristan Bernard's *Danseur Inconnu*; Courteline's *Boubouroche* and Zamacois's *Fleur Merveilleuse*, a fantastic piece in the style of *Les Bouffons*. Bataille's *Vierge Folle* sketches the career of a neurasthenic girl who ends by suicide. Posthumous plays of interest were Balzac's *L'École des Ménages*, a study of marital relations, and Henri Becques's *Polichinelles*, a realistic and unpleasant drama. Balzac's *César Birotteau* was made into a play and produced with some success. *Hamlet* and *Jules César* were important Shakespearean revivals. René Fauchois, the author of *Beethoven* (see YEAR BOOK, 1909), created a sensation by attacking Racine in a lecture that was bitterly resented. Among books dealing with theatrical topics were the *Mémoires* of the veteran actor, Got, and a *Vie Sentimentale de Rachel*, by Mlle. Thomson.

GERMANY. On the German stage a drama entitled *Sold*, by the Russian author, George Erastov, made a deep impression. *The Moloch*, also by a Russian, Leo Berensky, was produced in Berlin with some success. Hermann Bahr's comedy, *The Children*, also met with a favorable reception. See GERMAN LITERATURE.

**DRAPEE, WILLIAM FRANKLIN.** An American manufacturer and diplomatist, died January 28, 1910. He was born in Lowell, Mass., in 1842 and was educated at the common schools and an academy. He enlisted in 1861 in the 25th Massachusetts and served throughout the war, becoming lieutenant-colonel and brevet brigadier-general of volunteers. After the close of the war he engaged in the manufacture of cotton machinery, in which he was successful. He was a member of Congress from Massachusetts from 1892 to 1897, and from the latter year until 1900 was United States Minister to Italy. In 1909 he published an interesting book of reminiscences.

**DREDGING.** A powerful clay-cutting suction dredge was put in service on the Upper White Nile and showed its ability to cut channels at a rapid rate. The vessel had a flat-bottomed, rectangular shaped hull, 162 feet long x 28 feet beam, and was propelled by a paddle wheel at the stern. The working end of the hull carries a frame or movable suction tube, on the front of which is mounted a heavy steel rotary cutter. This cutter, as well as the centrifugal pump working in connection with it, is driven by a 700 horse-power triple expansion engine to which steam is supplied by Babcock and Wilcox water-tube boilers. Near the stern of the vessel, on either side, steel anchors are secured to fastenings that can move in slotted castings and allow the boat to swing from side to side through a small angle, while holding her so as to offer resistance to going backwards when dredging. By means of these spuds or flexible anchors, a channel can be dredged 150 feet in width and 25 feet in depth without changing the vessel's position. The mud and spoil sucked up is delivered through a pipe supported on pontoons to any desired point.

A dredge of 2224 tons capacity was constructed in Great Britain for Argentina. This

of course is not to be compared in size with the 10,000 ton leviathan of the Mersey Harbor Board and other British dredges, but shows the attention that harbor work in South America is attracting.

**DREADNOUGHTS.** See BATTLESHIPS and NAVAL PROGRESS.

**DEY DOCKS.** See DOCKS AND HARBORS.

**DEY WINES.** See LIQUORS, FERMENTED AND DISTILLED.

**DUBOC, CHARLES ÉDOUARD.** A German author of French extraction, died in April, 1910. He wrote under the pseudonym "Robert Waldmüller." He was born in Hamburg in 1822, son of Edouard Duboc author of *Dignité de l'Homme*. He wrote a great number of poems, novels and reminiscences, some of which became very popular. He also wrote dramas and translated into German the poems of François Coppée, and Alfred Tennyson's *Enoch Arden* and *In Memoriam*. Among his novels are *Leid und Lust* (1874); *Darja* (1884) and *Liebesstürme*. He wrote also the tragedy, *Brunhilde* (1873), and the drama *Die Tochter des Präsidenten* (1880).

**DUGMORE, A. R.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**DUMA.** See RUSSIA, *History*.

**DUNANT, JEAN HENRI.** A Swiss author and philanthropist, died October 31, 1910. He was born in Geneva in 1828. He inherited a large fortune and during the battle of Solferino in Italy in 1859 conceived the idea of an international agreement for the care and protection of those wounded in battle. His conception included the idea of pledging the nations to regard as neutral all sick and wounded combatants and all persons caring for them, and through the coöperation of the Swiss Federal Council he brought about an international conference at Geneva in 1863, at which 16 governments were represented. From this conference grew the International Red Cross Society. This meeting was followed in 1864 by the Geneva Convention, at which time articles of agreement were signed by twelve governments. The Red Cross flag was adopted, an international committee was provided and it was agreed that each country should have its own national Red Cross organization. From the twelve governments originally signing the agreement, the number afterwards grew to forty. M. Dunant spent his fortune in perfecting Red Cross organizations, and in 1901 he was awarded the Nobel prize for peace. He was the author of several books including the *Souvenir de Solferino*, which ran through many editions; *Fraternité et Charité Internationales en temps de guerre* (1st and 7th editions, 1864); *l'Esclavage chez les Musulmans et aux Etats-Unis de l'Amérique*, (1863); *La Renovation de l'Orient* (1865). In his later years he received a pension from the Empress of Russia.

**DUNKERS or DUNKARDS.** See BRETHREN, CHURCH OF THE,

**DUNNE, EDWARD JOSEPH.** American bishop of the Roman Catholic church, died August 5, 1910. He was born in Tipperary, Ireland, in 1848, and in the following year his parents removed to the United States, settling in Chicago. He was educated at the College of St. Mary's of the Lake, and studied theology at the Seminary of St. Francis de Sales of Milwaukee, and St. Mary's of Baltimore. He was ordained priest in 1871. From 1875 to 1893 he served as assistant pastor of All Saints Parish, Chicago. In the

latter year he was consecrated Bishop of Dallas, Texas.

**DURALIUM.** See **CHEMISTRY, INDUSTRIAL**, paragraph *Alloys*.

**DUTCH EAST INDIES.** Colonial possessions of the Netherlands lying between Australia and the continent of Asia.

**AREA, POPULATION, ETC.** Area and population (necessarily approximate only) are given below:

	Sq. miles	Pop. end of 1905
Java and Madura.....	50,775	30,098,008
Island of Sumatra:		
Sumatra, West Coast....	31,788	1,721,772
Sumatra, East .....	35,480	568,417
Benkulen .....	9,436	204,269
Lampongs .....	11,358	156,518
Palembang .....	53,716	796,852
Atjeh (Achin).....	20,549	552,175
Riau-Lingga Archipelago....	16,378	112,216
Banca .....	4,473	115,189
Billiton .....	1,870	36,853
Borneo, West Coast.....	56,060	450,929
So. & East Dists.....	157,585	782,726
Island of Celebes:		
Celebes .....	49,405	415,499
Menado .....	22,176	436,406
Molucca Islands .....	44,038	407,906
Timor Archipelago .....	17,782	308,600
Bali and Lombok .....	4,063	523,535
New Guinea to 141° E. long.....	152,428	200,000
Total, 1905.....	748,340	128,000,000
Total, 1900.....		37,734,000

Europeans and assimilated persons numbered (1905) 80,910; Chinese, 563,000; Arabs, 29,000; other Orientals, 23,000; natives (about), 37,000,000. Births (Java and Madura and outposts) among Europeans and assimilated persons (1906), 2659; deaths, 1812; marriages, 997. Principal towns of Java: Batavia (the capital), with 138,551 inhabitants; Surabaya, 150,198; Samerang, 90,600. Of Sumatra, Palembang, 60,985; of Borneo, Banjarmasin, 10,708; of Celebes, Macassar, 26,145. There were (1907) 221 elementary schools for Europeans, with 25,054 pupils; for natives, 2229, with 251,439; for foreign Orientals, 478, with 12,426. Religious liberty prevails.

**PRODUCTION, COMMERCE, ETC.** Area (1907) under rice, 5,385,154 acres; corn, cotton, etc., 5,346,667; sugar-cane, 355,306; tobacco, 344,872; indigo, 35,429. Area under coffee not given; under rubber (estimated) 1907, 70,000 acres; 1908, 90,000; 1909, 120,000. Many coffee plantations have been replanted to rubber in the past two years. Production (1907) of sugar, 1,025,801 tons; coffee, 55,009,878 lbs. (1906, 101,819,600); cinchona (1906), 6,065,412 kilos; tobacco (1907), 61,313,212 kilograms; tea (Java), 11,494,665 kilos; indigo (Java, 1906), 289,527; cacao (Java, 1907), 1,382,149. Yield of tin mines (1907-8), 15,807 tons; of coal mines, 418,284 tons; oil yield (1907), 1,328,892,000 litres; diamond mines were opened up in southern Borneo early in 1910. Imports and exports in 1907 were valued at 247,270,702 and 364,558,145 guilders respectively (1 guilder=40.2 cents); in 1908, 280,562,000 470,714,000. Vessels entered (1907), 4143, of 3,400,878 tons. Miles of railway (1908), 3198 (2623 in Java, 575 in Sumatra); of telegraph, 8800. Telegraph offices, 569; post-offices, 1661.

**FINANCE AND GOVERNMENT.** Revenue and expenditure for four years are given in thousands of guilders:

	1906	1907	1908	1909
Revenue .....	169,340	185,331	189,511	181,540
Expenditure .....	167,951	173,846	191,083	193,939

Of the revenue in 1909, 41.9 per cent. was furnished by taxes; 24.6 by the opium and salt monopolies; 41.1 by sales of coffee, cinchona, tin, coal, rubber, etc.; diverse sources, 19.4. Of the annual expenditure, 25 per cent. is for defense and 25 per cent. for administration. The budget for 1910 estimates the revenue and expenditure at 194,318,330 and 218,335,062 guilders respectively. The governor-general (1910, A. W. F. Idenburg) is assisted by a council of five members.

The colonial army numbered (January 1, 1909) 35,208 officers and men (10,785 Europeans); 17 effective vessels, aggregating 23,159 tons, were stationed in East Indian waters.

**DUTCH GUIANA, or SUBINAM.** A Netherlands colony on the northern coast of South America. Area, between 46,000 and 49,000 square miles. Population (exclusive of negroes in the forest tracts) in 1908, 81,038. Capital, Paramaribo, with 34,962 inhabitants. Schools (1907), 60, with 7574 pupils. Production (1907) of sugar, 11,929,914 kilograms; cacao, 1,386,787; coffee, 236,560; rice, 1,510,911; corn, 707,165; bananas, 397,758 bunches; rum, 859,249 litres; molasses, 280,852 litres. Imports (1907), 6,903,608 guilders (1 guilder=40.2 cents); exports, 5,888,567 (gold, 1,427,418). Vessels entered, 211, of 114,664 tons; cleared, 209, of 113,654. Local revenue (1909), 4,051,350 guilders; expenditure, 4,874,329; subvention, 822,979. Governor (1910) R. D. Fock.

**DUTCH REFORMED CHURCH.** See **REFORMED CHURCH IN AMERICA**.

**DUTCH WEST INDIES.** See **CURACAO** and **DUTCH GUIANA**.

**DUTIES.** See **TARIFF**.

**DWIGHT, JONATHAN.** An American engineer, died November 28, 1910. He was born in 1831 and graduated from Harvard College in 1852. After leaving Harvard he went to West Point and studied civil engineering. He practised his profession in the west and helped build several lines of railway. In 1861 he settled in Madison, N. J., and thereafter practised almost wholly as a consulting engineer. He was for a time one of the chief engineers of the New York Central Railway. He had charge of laying the foundation of the Statue of Liberty in New York Harbor.

**DYER, NEHEMIAH MAYO.** A rear-admiral of the United States Navy (retired), died, January 27, 1910. He was born at Provincetown, Mass., in 1839, and was educated in the public schools. He followed the sea from 1854 to 1859, and was in mercantile employment from 1859 to 1861. In the latter year he enlisted in the 13th Massachusetts Volunteers, and in 1862 was transferred as acting master's mate. He was promoted for gallant service to acting ensign in 1863 and acting master in 1864. In 1868 he was commissioned lieutenant in the regular service and in the same year was made lieutenant commander. He became commodore in 1883, captain in 1897, and rear admiral, retired, in 1901. During the Civil War he served at the Navy Yard of Boston and on various vessels, participating in the battle of Mobile Bay and the surrender of Fort Morgan. He was on various duties afloat and ashore until the outbreak of the Spanish-American war. He participated

in the Battle of Manila Bay, May 1, 1898, as second in command to Admiral Dewey. He was advanced seven numbers in rank for eminent and conspicuous conduct in this war.

**DYESTUFFS.** See CHEMISTRY.

**DYNAMICAL GEOLOGY.** See GEOLOGY.

**DYNAMO-ELECTRIC MACHINERY.** No new types of electrical machines were brought out in 1910 and the most noteworthy progress was in the direction of units of enormous size, especially turbo-alternators. Machines of 15,000 kilowatts have been placed in service, designs for 20,000 kilowatt units have been prepared and makers have announced their entire readiness to undertake the production of 25,000 kilowatt units. The immense machines owe their advantage to their lower cost per kilowatt of capacity and the reduction of labor costs in stations rather than to great gains in efficiency. The enormous output of power which these machines supply for momentary periods when short circuited, exceeding in some cases 100,000 kilowatts, makes the problem of protection peculiarly difficult. In some instances reaction coils of extremely rugged design have been placed in series with the armature windings to limit the short-circuit current.

The advance in the design and construction of transformers was exceptional, with a distinct trend toward the use of three phase units. These have now reached the immense size of 14,000 kilovolt-amperes and are built for voltages up to 140,000. Improved methods of oil circulation have made possible the increase of self-cooled transformers to a maximum size of 2000 kilovolt-amperes, as compared with 800.

No new types of motors were produced but the production of small and moderate sized motors for industrial installation exceeded all previous records. While the bulk of the industrial load is carried by direct current and induction motors the increase in the use of single phase commutator motors was great. No effective type of adjustable speed alternating current motor has yet appeared on the market, but an experimental type of three phase commutator motor was developed which gives promise of becoming a worthy rival of the direct-current shunt motor in this important field.

An important recommendation was made by the International Electrotechnical Commission at its Brussels meeting of 1910 to the effect that both generators and motors be rated hereafter in watts rather than horsepower.

The design of a 20,000 kilowatt generating unit, referred to above, has been carried out in the construction of two machines that will be put in service in the first few months of 1911 by the Commonwealth Edison Company, Chicago, in a station approaching completion to be called the Northwest Station. The design is similar to the 14,000 kilowatt units already in use in the Quarry Street Station in the same city, which are 3-phase, alternating current, revolving field generators on vertical shafts, direct coupled to Curtis five-stage steam turbines. Some of these machines are built for 9000 volt, 25 cycle energy, and the other group for 12,000 volt, 60 cycle.

**DYSON, C. C.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**DYSPROSIUM.** See ATOMIC WEIGHTS.

**EARLAND, ADA.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**EARNINGS AND EXPENSES, RAILWAY.** See RAILWAYS.

**EARTH, AGE OF.** See GEOLOGY.

**EARTHQUAKES.** The list of earthquakes which were recorded in the press and by seismological stations during 1910 included only a few of first importance, and the year, like its predecessor, was comparatively free from disasters attributable to such disturbances. There appeared to be no lack of interest, however, in the study of earthquake phenomena that was so stimulated by the events of the few previous years. This department of geology, as a consequence, has developed into a practically new science, with its own methods, instruments and corps of observers. The large number of seismological stations now established in the different countries will make possible a systematic campaign of investigation from which valuable results may be expected.

The one formidable catastrophe of the year was incident to the Costa Rican earthquake of May 4, when the towns of Cartago and Paraiso were almost completely laid waste. The loss of life was estimated by officials of the country at over 1000 and the property damage at about \$25,000,000. The main disturbance was preceded by a long series of monitory tremors which seem to have been initiated by a sharp shock on April 13 that was especially noticeable at San José, the capital. Many of the urban dwellers had taken timely warning and sought shelter in the open before the violent earthquake came, so that the mortality was comparatively small in view of the completeness of the devastation. Clouds of dust, a heavy roar like thunder and temporary darkness, as usual, were accompanying features of the disaster, which was further accentuated by fire and later by a deluge of rain. The Carnegie Peace Palace, recently erected in Cartago, shared in the ruin.

Iceland was shaken, on January 22, by an earthquake that was transmitted long distances but did little damage. It may have been of submarine origin. A moderately heavy shock was reported on June 7 as felt at Naples, Benevento and other places in southern Italy; some damage to property resulted. Slight shocks were felt on June 16 in many parts of the Iberian peninsula and North Africa. The peninsula of Peloponnesus was shaken by a heavy earthquake on December 29, which inflicted much damage. The minor disturbances, of which the most were noted only by seismological stations, need not be mentioned.

**CALIFORNIA EARTHQUAKE.** The second volume completing the work of the commission appointed for the investigation of the California earthquake of April 18, 1906, was published by the Carnegie Institution. In this volume the mechanics of the earthquake are discussed by H. F. Reid. It consists of a first part on the phenomena of the megaseismic region, a second part on the instrumental records of the disturbance and an appendix on the theory of the seismograph. One of the most important features of the earthquake was the permanent displacement along the San Andreas fault; the shift amounted to no less than six metres, the southwestern side of the fault moving that distance northeast. The accumulation of strain preceding the actual rupture is believed to have gone on for about a century. In this connection Reid considers the possibility of predicting earthquakes by measuring the development of strains in fault zones. A plan proposed is to build a line of pillars, a kilometre or so apart,

at right angles to the direction of the fault; geodetic measurements at intervals of a few years would then indicate the growing distortion of the line due to accumulating stress. A strong shock might be expected when the angular strain attained a magnitude of one two-thousandth. It seems probable that a long period of time will elapse before another important earthquake will take place along the San Andreas rift, although sharp disturbances may occur from neighboring faults. In the discussion of the seismographic records of the earthquake, the author states that they indicate clearly the different paths pursued by the preliminary vibrations and the main waves, the first and second preliminaries being transmitted through the earth and the main waves around the earth, as has been previously surmised. Observations of the different phases, however, cannot be relied on at stations situated over 100 degrees of arc from the zone of disturbance for first preliminaries or over 125 degrees for second preliminaries. Hence the need is for more delicate instruments which will magnify the vibrations not less than 100 times. Stations should also be equipped with instruments for recording the vertical component of motion.

**EAST AFRICA.** See **BRITISH EAST AFRICA**; **GERMAN EAST AFRICA**; **PORTUGUESE EAST AFRICA**.

**EATON, W. P.** See **LITERATURE, ENGLISH AND AMERICAN, Poetry and Drama**.

**ECKERT, THOMAS THOMPSON.** An American financier and soldier, died October 20, 1910. He was born in St. Clairville, Belmont County, Ohio, in 1822. His father was a farmer and he received only the education possible in his surroundings. While he was still a boy the principle of telegraphy was discovered by Samuel F. B. Morse. He became interested and decided to go East to take advantage of what he conceived to be an extraordinary business venture. In 1847, after a hard struggle, he reached New York, where he learned what there was to be learned of telegraphy in those days, and then went back to Ohio to supervise the Ft. Wayne railway extension of what was then the newly organized Western Union Company's Line. He stayed with this company until 1859, when he went to North Carolina to search for gold. He was there when the Civil War broke out, and returned to Washington where he was placed in charge of the military telegraph office by Col. Thomas Scott. As director of the government's wires to the front he achieved a great work. He enjoyed the implicit confidence of President Lincoln and Secretary Stanton. As a reward for his service he was brevetted lieutenant-colonel in 1864 and subsequently his rank was raised to that of major-general. In the same year he was appointed to be assistant-secretary of war, an office which he filled until the close of the war in 1866. He then resigned to accept a position as general superintendent of the eastern division of the Western Union. At this time this company was in its period of greatest extension and was absorbing companies which had been hitherto keen rivals. The trans-continental lines were completed and the great project of linking America with Europe by way of Behring Straits and Siberia had been put under way, when the successful laying of the first Atlantic cable stopped any further work on this undertaking. In the early part of 1870, General Eckert, as general superintendent,

coped successfully with the great strike of the Telegraphers' Protective League. During the fight for control between the Western Union and the Atlantic and Pacific companies in 1875, he was elected president of the latter company. He returned to the Western Union when that company succeeded in buying up the stock of its rival. In 1893 he was elected president of the Western Union, a position which he held until the time of his retirement in 1902.

**ECLIPSES.** See **ASTRONOMY**.

**ECOLOGY.** See **BOTANY**.

**ECONOMIC ASSOCIATION, AMERICAN.** A learned society, founded in 1885 for the encouragement of economic studies and the publication of papers thereon. The association holds annual meetings in the latter part of December in different cities of the United States. The meeting in 1910 was held at St. Louis, beginning December 27, and closing December 30. The following topics were discussed, the more important ones being the subject of special sessions: Economic Aspects of Immigration, Money and Prices, The Problem of Poverty, A Century of Ricardianism, Canals and Waterways, and Railway Rates. In conjunction with the meeting of the association were held meetings of several kindred associations, including the American Political Science Association and others. A joint session of the first named societies met on December 27, and presidential addresses were delivered by Dr. Edmund J. James on the Economic Significance of a Comprehensive System of National Education, and by Dr. Woodrow Wilson, president of the American Political Science Association. The sessions of December 28 were devoted to Money and Prices, the Ricardo Centenary and Accountancy. Papers were read by Professor J. Lawrence Laughlin of the University of Chicago, Professor Irving Fisher of Yale University, Mr. A. D. Noyes of the New York *Evening Post*, Professor Jacob H. Hollander, Johns Hopkins University, Dr. James Bonar and others. The session of December 29 was devoted to Canals and Railways, Problems of Immigration and to a joint session of the American Economic Association and the American Association for Labor Legislation. Papers were read by Professor Emery R. Johnson of the University of Pennsylvania, Professor T. N. Carver, of Harvard University, Professor J. A. Field, University of Chicago, and Professor J. Allen Smith of the University of Washington. At the joint session of the American Economic Association and the American Association for Labor Legislation, the following topics were discussed: Industrial Accidents and Industrial Diseases, Lead Poisoning in Illinois, Industrial Diseases in America, Voluntary Indemnity for Injured Workmen, Compulsory Compensation for Injured Workmen, Progress and Next Steps in Workmen's Compensation. The Session of December 30th was devoted to a joint session with the American Political Science Association on the subject of Taxation and on the subject of Monopolies. Papers were read by Professor T. S. Adams of Washington University, Professor H. J. Davenport of the University of Missouri, Dr. Richard T. Ely of the University of Wisconsin and Mr. John Martin of New York. The membership of the association in 1910 was about 1500. The association issues many publications, including many volumes of economic studies which are of great value. At the meeting in 1909 it was

decided to establish not later than January 1, 1911, a new Economic Journal to be known as the *American Economic Review*, to be in charge of an editor elected by the association, and eight associate editors. The officers for the year 1910 were: President, Edmund J. James, University of Illinois; Vice-President, Frank L. McVay, University of North Dakota; Herbert J. Davenport, University of Missouri; Alvin S. Johnson, University of Chicago; Secretary and Treasurer, T. N. Carver, Harvard University.

**ECONOMIC ENTOMOLOGY.** See ENTOMOLOGY.

**ECONOMIC GEOLOGY.** See GEOLOGY.

**ECUADOR.** A South American republic on the Pacific coast between Colombia and Peru. The capital is Quito.

**AREA AND POPULATION.** The 16 provinces have an estimated area of 116,000 square miles. The population has been estimated at 1,272,000, or, including uncivilized Indians, 1,400,000. An estimate published in 1910, however, places the total at about 1,500,000. The Galápagos islands, constitute a territory; area, 2400 square miles; population, about 500. The inhabitants of Ecuador are almost all of Indian or mixed blood. The principal towns, with estimated populations, are: Quito, 80,000; Guayaquil, 75,000; Cuenca, 40,000; Riobamba, 18,000.

Public primary schools, instruction in which is free, number about 1200, with about 70,000 pupils in attendance. There are several institutions, especially in Quito for secondary, higher, and professional education. The established religion is Roman Catholicism.

**INDUSTRIES.** The people are occupied chiefly in agriculture. Valuable minerals exist, but have been little exploited. A few manufactories are established in Quito and Guayaquil. The plaiting of Panama hats is of considerable importance. The staple product is cacao, Ecuador being one of the principal sources of this article. Coffee, rice, and sugar-cane are cultivated.

**COMMERCE.** Imports and exports, in thousands of sucres, have been valued as follows:

	1906	1907	1908	1909
Imports .....	17,012	19,670	20,555	18,704
Exports .....	21,965	22,907	26,559	24,449

The leading imports are textiles, food-stuffs, iron manufactures, clothing, and wines and liquors. The decline in exports in 1909 is more apparent than real; for the total for the preceding year includes gold coin to the value of 2,800,508 sucres, while the total for 1909 includes less than 900,000 sucres. Import values in 1908 and 1909, expressed in American money, are \$10,277,365 and \$9,352,122; export, \$13,279,603 and \$12,439,400. The principal exports in the two years were:

Articles	1908	1909
Cacao .....	\$ 8,868,520	\$ 7,261,309
" pounds.....	70,662,042	69,453,562
Ivory nuts .....	\$ 492,626	\$ 1,530,991
Panama hats .....	799,284	1,158,573
Rubber .....	415,919	770,334
Gold (metal and ore).....	374,981	274,368
Hides .....	166,703	226,398

Of the cacao exported in 1909, France received 39,064,753 pounds, valued at \$4,190,386; United States, 13,893,658 pounds, \$1,407,077; Great

Britain, 4,633,497 pounds, \$440,668; Germany, 4,927,727, \$435,232. Trade with the most important countries, in thousands of dollars:

	Imports from		Exports to	
	1908	1909	1908	1909
Great Britain ....	3,602	3,150	1,761	1,251
United States ...	2,049	2,398	3,871	3,416
Germany .....	2,149	1,673	992	1,578
France .....	739	610	5,053	4,461

During 1909 foreign vessels entered at the port of Guayaquil numbered 195 steamers and 7 sailing vessels, with a registered tonnage of 398,963 and a cargo of 87,717 tons. Over half the shipping was British.

**COMMUNICATIONS.** The total length of railway in actual operation is about 325 miles, of which 286 miles are comprised in the line from Guayaquil to Quito, opened in June, 1908. In 1910 a line (begun in July, 1909) between Bahía de Caraquez and Quito (about 300 kilometres) was under construction. The government has contracted for a line from Vargas Torres to Ibarra (about 200 kilometres) and for one from Manta to Santa Ana. Telegraph system, 2608 miles, with over 60 offices. Quito is connected with Guayaquil and other towns by telephone.

**FINANCE.** The unit of value is the sucre, worth one-tenth of a sovereign, or 48.665 cents. Revenue and expenditure, in thousands of sucres:

	1906	1907	1908	1909
Revenue .....	12,188	12,725	13,362	15,878
Expenditure .....	13,237	15,402	12,765	15,566

About 70 per cent. of the revenue is derived from import and export duties. The largest item of expenditure is for the army. Total net debt, June 30, 1909, 43,142,393 sucres; on June 30, 1910, 44,000,000.

**ARMY.** While there are laws providing for compulsory military service these are not rigorously enforced and a standing army estimated at about 4350 officers and men is maintained. In time of war the National Guard could be increased up to about 90,000 men.

**NAVY.** There are one torpedo launch, one transport, and one lighter, with about 130 men.

**GOVERNMENT.** The executive authority is vested in a president, elected by direct vote for four years and assisted by a cabinet of five members. The Congress consists of the Senate (32 members) and House of Representatives (41, members). The president in 1910 was Gen. Eloy Alfaro, inaugurated Jan. 1, 1907.

In May, Ecuador in accepting the mediation of United States, Argentina, and Brazil in her boundary dispute with Peru imposed conditions which Peru was inclined to reject and troops in both countries were sent to the frontier, but at the request of the mediators the troops were withdrawn by June 4. On that day President Alfaro announced Ecuador's acceptance of the offer of mediation. Meanwhile Ecuador having refused arbitration under the King of Spain, the latter withheld his decision and later resigned the office of arbitrator. In August an outbreak of the bubonic plague was reported.

**EDDY, MARY (BAKER) GLOVER.** The founder and discoverer of Christian Science, died Dec. 3, 1910. She was born at Bow, N. H., in 1821.



MARY BAKER G. EDDY

३५०

Among her ancestors were persons distinguished in the early history of the United States. The first fifteen years of her life were passed on the farm on which she was born at Bow, but in 1836 her father sold the farm and she removed to Tilton, N. H. She attended school at Ipswich Seminary and other academic institutions, and also received instruction from her brother, who was a graduate of Dartmouth College. As to the amount of education which she received there is a dispute of authorities. It is asserted by some that she studied Latin, Greek, Hebrew and French and became proficient in these languages. It is claimed also that she became comparatively learned in logic and metaphysics. These statements have been disputed by investigators, who declared that she was not a good student and had but little education.

As a young girl she showed traces of an abnormal mentality, and she herself has detailed at some length curious psychological experiences which she underwent in her youth. Long before she became of age, she is said to have regarded herself as one set apart for some great work. Before she was sixteen years of age she had decided to fit herself either for the ministry or some other lifework in which she could make her abnormal mental powers felt.

In 1843 she married George Washington Glover and with him removed to Wilmington, S. C. Six months after the marriage Mr. Glover died of yellow fever and a few months later a son was born to his widow. She returned with the child to Tilton, N. H. Here she became deeply interested in the study of homœopathy and began a course at one of the colleges near her home. She did not pursue these studies long and on account of financial difficulties was obliged to place her child in the care of a nurse and go back to live at her former home. The child was left in ignorance that she was living and it was not until many years had passed that he discovered the fact.

Mrs. Glover was married again in 1849 to Dr. Daniel Patterson, a dentist. Mrs. Eddy has claimed that her chief object in marrying Dr. Patterson was to provide a home for herself and her child. She declared, however, that the child's stepfather was not willing that it should have a home with her. This marriage was unfortunate and a divorce was obtained in Salem, Mass. During the period of her marriage to Dr. Patterson, Mrs. Eddy began the foundation of what was later to be proclaimed the cult of Christian Science. The details of these experiences differ. Some of her biographers relate that she obtained possession of the life work of Phineas Parkhurst Quimby of Portland, Me., a believer in mental healing, rewrote many of his ideas and made of them a religion. This charge was denied by Mrs. Eddy and Christian Science leaders and several books in refutation of the accusation have been written at different times. It is a well known fact, however, that Mrs. Eddy prosecuted studies under Quimby in 1864. For several years after her studies with Quimby, Mrs. Eddy practised mental healing, but it was not until 1870 that she published her first volume, *Science of Man*, with a chapter on Science and Health. This was the forerunner of the book *Science and Health, with Key to the Scriptures*, which is the official text of the Christian Science Church. Previous to this time, however, in 1877, she married Asa Gilbert Eddy.

Dr. Eddy was the first man in the world to announce himself a Christian Scientist. He was also the organizer of the first Christian Science Sunday school, and in his later years attracted much attention by his lectures on Scriptural topics. He died in 1882.

Mrs. Eddy was successful as a healer, and the movement soon outgrew the city of Lynn, Mass., where she was at that time living and she removed to Boston. The Christian Science movement at once became popular in that city and its growth was remarkable. The official organ, the *Journal of Christian Science*, was established, with Mrs. Eddy as editor and chief contributor. This soon had a large circulation. Shortly after her arrival in Boston, Mrs. Eddy and her followers organized a Christian Science Association and it was decided to erect a church, called the First Church of Christ, Scientist. A charter was obtained in 1879 and Mrs. Eddy became pastor of the church. She was regularly ordained as minister in 1881. During the same year she founded the Massachusetts Metaphysical College in Boston, and this college flourished for eleven years, closing in 1892. Its graduates at that time numbered about 4000 and they carried on the work of Christian Science in all parts of the world. About this time Mrs. Eddy took up her residence in Concord, N. H., and went into semi-retirement. She continued, however, to have absolute authority in all matters relating to the Christian Science movement. Her home, called Pleasant View, became a place of pilgrimage for Christian Science believers.

In 1906 reports were circulated that Mrs. Eddy was dying. These reports were denied and Mrs. Eddy issued a statement declaring them false. They continued, however, and in March, 1907, a bill in equity to obtain an accounting of her financial affairs was filed by her son, George W. Glover, who alleged that his mother's property was in the control of persons who unduly influenced her. Mrs. Eddy was at this time reputed to be worth a large sum of money. The suit resulted in a compromise by which a fund of \$400,000 was set apart by Mrs. Eddy for her son and other relations. During this litigation, Mrs. Eddy removed her household from Concord to Newton, Massachusetts. Scarcely had this suit been settled when trouble arose over the alleged attempt on the part of Mrs. Augusta E. Stetson, leader of the First Church of Christ, Scientist, in New York City, to usurp the power of Mrs. Eddy and proclaim herself Mrs. Eddy's successor in the leadership of Christian Science. Mrs. Stetson denied these accusations, together with the additional charge that her teachings were contrary to the principles of Christian Science as taught by Mrs. Eddy. A hearing was held by the Board of Directors of the Mother Church, and as a result Mrs. Stetson was excommunicated, and sixteen of her followers were expelled from the First Church in New York City.

Mrs. Eddy's death came after many false reports of her decease had been circulated.

Whatever her mental and intellectual attributes may have been, it is an undisputed fact that Mrs. Eddy had a strong personality, a remarkable talent for organization, and firmness of purpose. Her authority was never questioned by her followers and she carried on the affairs of the denomination with absolute power and

almost without criticism until the time of her death.

She was a prolific writer. In addition to *Science and Health with Key to the Scriptures*, which has been revised many times, she wrote *Retrospection and Introspection*, *The Unity of God*, *Miscellaneous Writings*, *Rudimental Divine Science*, *Messages to Mother Church*, and *Christian Science Versus Pantheism*. She also contributed to the Christian Science periodicals. See CHRISTIAN SCIENTISTS.

**EDINBURGH, WORLD MISSIONARY CONFERENCE.** See MISSIONS, PROTESTANT, FOREIGN.

**EDMANDS, J. RAYNER.** An American astronomer, died March 26, 1910. He was born in 1850 and graduated from the Massachusetts Institute of Technology. He was for more than twenty-five years associated with the observatory staff of Harvard University and he made notable researches as an astronomer. In addition to his scientific work he will be remembered as having laid out paths in the mountains of New Hampshire. A short time previous to his death he completed a path from the base to the summit of Mount Washington.

**EDUCATION.** See below, **EDUCATION IN THE UNITED STATES**; also **UNIVERSITIES AND COLLEGES**, and the paragraphs on the subject in articles on countries and in States of the United States.

**EDUCATIONAL ASSOCIATION, NATIONAL.** See **EDUCATION IN THE UNITED STATES.**

**EDUCATION IN THE UNITED STATES. THE COMMISSIONER'S REPORT.** The first volume of the report of the United States Commissioner of Education for the year ending June 30, 1910, appeared late in December. The work of the bureau's newly appointed specialists in school administration and in land-grant college statistics had met with success, and the bureau's enlarged quarters and increased staff had amply justified themselves. In the field of state education it recorded that California had begun at Fresno to give two years of post-graduate or college work in its high school, South Dakota and Montana had placed all state educational institutions under a single board of control, Virginia had established a State Board of Regents, Iowa a State Board of Education, and Mississippi a State Educational Board of Trustees. Organizations like the Association of American Agricultural Colleges and Experiment Stations, had done much to encourage movable and summer schools, farmers' institutions, travelling specialists, and correspondence courses for teachers—all in the interest of rural schools, as well as of agriculture.

A fourth conference of State superintendents of public instruction was held with representatives of the bureau. There was also a conference of representatives of eight States of the Middle West, and the superintendents of thirteen Southern States visited Iowa, Minnesota, and Wisconsin under the auspices of the Southern Education Board.

Important legislation was recorded for New York concerning rural schools, for Virginia in general supervision, for Massachusetts, Ohio and Virginia concerning child labor, and for New Jersey concerning juvenile delinquents. Virginia established an agricultural board. New York provided for the pensioning of teachers in State institutions. Massachusetts is recasting her entire state educational system. The bureau,

the Census Office, the National Education Association's committee on uniform statistics, and the National Association of School Accounting Officers are coöperating for the better reporting of all school statistics.

In various city school systems there were interesting special activities, like open-air schools, the extension of medical inspection, the advance of the trade-school idea, the combination of schooling and apprenticeship, arrangements for finding employment for school graduates, and the increase of attention paid to backward and otherwise exceptional children.

Reports on industrial education were issued by the American Federation of Labor, National Association of Manufacturers, National Society for the Promotion of Industrial Education, State of New York, and Bureau of Education. Libraries and museums, playgrounds, home-and-school associations, evening and other continuation schools, lectures, correspondence courses, and home study, all showed in the year some new adjustment to the regular work of the schools.

The commissioner, in conclusion, called attention to the need for a more stable and a better trained body of teachers, for less ornamental and more sanitary school buildings, for better attendance in the higher elementary grades, and for still better supervision of country and rural schools.

**STATISTICS.** Preliminary statistics from the report of the commissioner, announced for March 1911, gave a public school enrollment in 1910 of about 17,200,000 pupils, or 19.6 per cent. of the population. In addition, private schools enrolled 1,500,000 and universities, colleges and professional schools 300,000,—the grand total of 19,000,000 representing 21 per cent. of the population. The public schools spent about \$380,000,000, or \$31 per pupil in average attendance, or \$4.27 per capita of the population. The average attendance was 71 per cent. of the enrollment, and of this 92 per cent. was in elementary and 87 per cent. in secondary schools.

The report of the commissioner appearing in March, 1910, owing to the slow process of collecting statistics through State and county superintendents, presents complete statistics of State school systems for 1907-8, along with those of city school systems for 1908-9. The grand total enrollment in the common schools for 1907-8 was 17,061,962 pupils, or 19.64 per cent. of the total population. The total included 8,573,825 boys and 8,448,173 girls, 4,935,986 pupils in 669 cities of 8000 population and over, and 737,907 in 679 towns of 4000 to 8000 population. In all there were 770,456 students in public high schools. There were 1,319,409 pupils in private schools in cities and towns, and 227,652 elsewhere. The 5,673,893 pupils in public schools in towns and cities, constituting 33 per cent. of the total enrollment, had an average term of 188 days an average daily attendance of 77 per cent. of the enrollment. They were cared for by 134,265 teachers—11,750 men, 122,514 women—at a cost of \$183,170,820, or \$41.85 per pupil in average attendance, or 22 cents per pupil per day. The 11,388,069 pupils in public schools outside of towns and cities, 66 per cent. of the total, had an average term of 134 days, and an average attendance of 68 per cent. of the enrollment. They were cared

for by 361,198 teachers—92,745 men and 268,453 women—at a cost of \$188,173,590, or \$24.19 per pupil in average attendance, or 18 cents per pupil per day.

**ATTENDANCE.** Of the attendance of 3,745,591 in 1907-8 in places of 4000 population and over, 19 per cent. was in first grade classes, 19 per cent. in second grade, 14 in third, 13 in fourth, Of the high school attendance of 420,000 in the same places in 1908-9, 42 per cent. were in the first year, 26 in the second, 17 in the third, and 12 in fifth, 10 in sixth, 8 in seventh, 5 in eighth, 12 in the fourth. Evening schools in 233 places of 8000 and over enrollment in 1908, 379,052 pupils who averaged an attendance of 41 per cent.

**TEACHERS.** Of the teachers, 21 per cent. were men as compared with 42 per cent. in 1880, 34 per cent. in 1890 and 29 per cent. in 1900. The average monthly salary was \$53.88, the average for men being \$62.35, for women \$51.61, a marked increase since 1900. The public schools in 1907-8 used 282,170 buildings and property valued at \$945,395,162, expending a revenue for school purposes of \$381,919,526 or \$4.37 per capita of population as compared with \$2.84 in 1900, \$2.24 in 1890, and \$1.56 in 1880. This expenditure was divided into \$73,640,408 for equipment, \$77,923, 879 for maintenance, and \$219,780,123 for salaries. The expenditure for public schools represented in 1904 25 cents for each \$100 of the total wealth of the country, as compared with 24 cents in 1900, 31 in 1890 and 17 in 1880. Permanent funds for the benefit of public education amounted in 1908 to \$246,943,349, the States having more than ten million being Texas, \$61,526,243, Illinois \$20,275,835, Minnesota \$19,709,383, North Dakota \$14,000,000, Missouri \$13,754,150, and Indiana \$11,002,363.

**SPECIAL SCHOOLS.** There were in 1908-9, 273 normal schools with 3660 instructors, 82,288 students, and 14,165 graduates. Of these the 193 public normal schools had 3150 instructors, 73,370 students, and 12,659 graduates. There were also 9822 students in training courses for teachers in 733 public high schools, and 4,105 in 195 private high schools and academies. The 7809 such students in universities and colleges brought the total number of students in training courses for teachers to 103,824.

More than half of the 1348 places of 4000 inhabitants and over now provide manual training in the schools. Only 37 did so in 1890. In 265 public high schools there were 25,665 students in manual training. In 310 specifically manual, industrial and technical schools there were 71,090 high school and 43,555 elementary pupils. These 310 schools include 60 for Indians.

There were in 1908-9 574 commercial and business schools with 3300 instructors and 146,288 students, 72,255 business and commercial students in 1431 public high schools, 7194 in 386 private schools and academies, 5405 in 66 universities and colleges, and 1350 in 39 normal schools.

In the 16 former slave States and the District of Columbia there were 1,665,781 negroes in the schools in 1907-8 as compared with 1,560,070 in 1899-1900 and 1,296,959 in 1889-1890. There were in 1908-9 135 schools especially for negroes with 2417 teachers and 44,073 pupils, 23,160 receiving industrial training.

Reformatories gave instruction to 39,877 inmates, of whom 36,262 were in vocational classes.

There were also 105 reform schools with 51,871 inmates.

For the blind there were in 1908-09 41 State schools with 534 teachers and 4413 pupils, for the deaf, 57 public and 70 other institutions with 12,771 pupils. There were 26 State and 17 private institutions for the feeble-minded, with 11,103 inmates receiving instruction.

There were in 1908-09, 3738 pupils enrolled in 78 schools in Alaska, an increase of 44 per cent. over 1907-08.

**ASSOCIATIONS.** The National Education Association meeting in Boston in July, declared: its endorsement of the National Bureau of Education, and of an increased appropriation for its support; its appointment of the United States commissioner of education, the president and all living ex-presidents of the National Association, and seven others to formulate plans for an international council of education; its commendation of the growing interest in the moral development of children; its belief in the old courses of study giving culture and transmitting the ideas and ideals of the past, along with its endorsement of the movement to make courses of study more democratic, commercial and industrial, with more liberal appropriations for work in agriculture, in the trades and industries, and in home economics; its belief in all efforts to make educational plants more sanitary and to impress the importance of the proper observance of the laws of health; its endorsement of legislation against the employment of children in industrial occupations that limit their educational opportunities; its endorsement of higher salaries, broader culture, more thorough training, and loftier ideals for teachers; its sense of the duty of all teachers to advance the movement for the world's peace; and its opposition to any division of the public school funds among private or sectarian schools.

At the Education section of the American Association for the Advancement of Science, meeting in Boston during the Christmas recess of 1909-10, Professor Mead of the University of Chicago held that "The Psychology of Social Consciousness" should be more fully considered in teaching. Professor Dearborn of Chicago presented tests for measuring progress in learning to read and of the success of methods of instruction, and Professor Ruediger of George Washington University presented similar tests for merit in teachers.

**THE SOUTH.** The thirteenth annual Conference for Education in the South, meeting in Little Rock, Ark., in April, reported that since 1900 current expenditure for public education in the Southern States had increased 150 per cent., the value of school property 200 per cent., the expenditure for the training of teachers 200 per cent., high school facilities in cities and towns 100 per cent., in villages and rural districts 400 per cent., the average length of the school year from 20 to 25 per cent., the average increase of teachers' salaries from 50 to 100 per cent. The General Education Board, besides granting about \$1,500,000 for higher education in the South, had been instrumental in establishing about 1000 high schools, chiefly through maintaining special high school representatives in the State universities. It had also aided agricultural demonstration work and rural schools, through the United States Department of Agriculture. In May, the board appropriated \$31,450 for such professors of secondary education

and \$113,000 for the agricultural work mentioned. In January the Peabody Education fund allotted \$1,000,000 to the Peabody Normal College, at Nashville, Tenn.

**CITY SYSTEMS.** In the schools of New York City, naturally the leaders in many matters, 698,933 pupils enrolled in September, an increase of 18,065 over 1909. Of these 53,816 were on part time, an increase of 863. One high school enrolled 1407 new pupils. The Permanent Census Board of the Department of Education found 1236 children living in one block. In January Dr. W. H. Maxwell was re-elected superintendent for a third term of six years. His twelfth annual report, appearing in December, recommended provision in all schools for serving lunches to pupils, a department for training teachers of atypical children, the continuance of sewing through the seventh and eighth grades and of cooking into the sixth as well as the last two years, a bureau of hygiene to examine pupils for physical defects and to take steps to remedy them; the establishment of summer schools, summer evening schools for teaching English to foreigners, several day truant schools, savings banks in every school, a small fee for evening schools, a corps of special teachers to assist regular teachers whose classes contained over 50 pupils, and, finally, the reorganization of salaries along civil service lines, with promotions and payments according to merit, without sex distinction. Of the 127 teachers retired in New York during the year ending February 1, more than one third were suffering from general nervous breakdown. In October a commission recommended salary increases of \$1,700,377 a year, 93 per cent. for women teachers and 7 per cent. for men.

In Chicago high schools the enrollment of girls increased 589, while that of boys decreased 22. Beginning with May all principals and all high school instructors in Chicago were required to have college degrees. In January \$240,000 a year was added to teachers' salaries, chiefly on the basis of service.

Pittsburg received from Mr. Carnegie a fund yielding about \$12,000 a year for the benefit of teachers. Much of this was expended in paying all the expenses of many teachers of summer schools.

Boston increased its pensions for teachers from about one-fifth to one-third of the salary on retirement at 65.

In Baltimore the refusal of the City Council to confirm two members of the school board of nine approved by the mayor, gave rise to charges of interference on the part of political interests and of school-book publishers.

The superintendent of schools in Springfield, Mass., found present day pupils far superior to those of 40 years ago, when tested by a set of examination questions and answers of that date. The same superiority was found, by means of the Springfield questions, in other cities.

**MORAL AND RELIGIOUS EDUCATION.** The Moral Education Board, with headquarters in Baltimore, prepared for schools a course of stereopticon illustrations of moral lessons from actual happenings. The Character Development League of New York prepared 100,000 booklets on "Traits of a Perfect Character" for the schools of New York and New Jersey. The Religious Education Association, meeting in

Nashville in March, discussed "The Church and Educational Forces," "The Public School and the Church," "Progress in Religious and Moral Education," "The Moral Atmosphere of the High School," and "Public School Teachers and Moral Education."

**SPECIAL SUBJECTS:** the CLASSICS, SCIENCE, ART. In special subjects the instruction in classics was influenced by the report of the American Philological Association in favor of the translation of unseen passages as a test of knowledge. There were efforts toward a better correlation between secondary school and college instruction in chemistry, and many discussions of the teaching of elementary and secondary school physics and of the general relations of that subject to education. The Public Education Association of New York emphasized indirect instruction in the arts through good pictures and other decorative agents in school buildings.

**SCHOOL AND COLLEGE ADJUSTMENT.** Although on the part of college authorities there was a growing tendency to cooperate with fraternities, public school authorities continued in some places to restrict, in others to abolish school secret societies. Colleges and secondary schools continued to widen their differences of opinion concerning the requirements for college entrance until some comprehensive discussion and agreement on the question seems imminent. That much adjustment is still necessary was shown by the North Central Association of Colleges and Secondary Schools dropping many high schools in Illinois, Indiana, Iowa, Minnesota, Michigan and Ohio from its accredited lists; and, in the East, of the Rector of St. Paul's, on the one hand, advocating that the secondary schools take over all collegiate instruction, and, on the other hand, Harvard's showing that of 178 first and second group scholars only seven came from such schools as St. Paul's.

**SPECIAL ACTIVITIES.** These are industrial, military and nautical education; international relations and schools for immigrants; physical education, hygiene, and play-grounds; vacation schools, provision for exceptional children, adults and negroes. The fourth annual convention of the National Society for the Promotion of Industrial Education, meeting in Boston in November, made a good beginning toward some practical adjustment between the schools and conditions in the fields of manufacture, commerce and labor. Military interests in the schools were encouraged by the action enabling the Secretary of War to aid school target practice. New York City continued to conduct the only free nautical school.

International relations were encouraged by French official encouragement of the teaching of that language in American schools and a German plan for an international exchange of pupils. The special school needs of immigrants continued to receive attention.

The Russell Sage Foundation reported that of 2392 high schools investigated, only 469 had athletic fields, 175 gymnasiums, and 139 a medical examination of students. Only 372 gave instruction in hygiene and 255 presented it; 188 gave instruction in gymnastics and 114 presented it; 232 gave instruction in athletics, and 28 presented it. In all of these matters the colleges do far better. The Playground Association reported 1535 public playgrounds maintained in 267 cities at a cost of \$1,353,114 an-

nually. Of 323,000 children examined in New York 183,000 had defective teeth, 73,000 nasal and 38,000 eye troubles. A Boston philanthropist in March established a \$2,000,000 endowment for the free dental care of all children under 16. Boston also experimented with school lunches. The movement for open-air schools met with extension and success.

New vacation schools were established in various cities, and school dramatics continued to prosper, although with some discouragements. The various movements for the special care of precocious, backward or otherwise exceptional children progressed steadily. More than 100 cities have now free lectures in school buildings for adults, following the example of New York City where the aggregate weekly attendance on such lectures reached 959,982.

Negro education was reported to have decreased the illiteracy of the race from 83 to 43 per cent. in ten years. Indian education and education in the Philippines continued under the disadvantage, in the eyes of educational experts, of being administered by the Bureau of the Interior and the War Department.

**PERSONAL.** The election of Mrs. Ella Flagg Young as president of the National Education Association and her re-election as superintendent of schools in Chicago encouraged women teachers all over the country and also encouraged the election of more women to lower school boards. Dr. Wm. J. Rolfe, author of many well-known school text books, and Charles Sprague Smith, director of the Peoples' Institute in New York City, died during the year.

**BIBLIOGRAPHY.** Among the important educational books of the year were: *How We Think* by John Dewey, *Habit-formation and the science of education* by Stuart H. Rowe, *Government by influence* by Elmer E. Brown, *Principles of education* by E. N. Henderson, *Changing conceptions of education* by E. P. Cubberly, *Vocational education* by John M. Gillette, *Horace Mann* by George A. Hubbell, *The American Rural School* by H. W. Foght, *Problems of the elementary school* by Arthur C. Perry, *High School administration* by Horace A. Hollister, *The teaching of Latin* by Eugene A. Hecker, *Education through music* by Charles H. Farnsworth, *Exercise in education and medicine* by R. Tait McKenzie, *Open air schools* by Leonard P. Ayres, *Play* by Emmett D. Angell, *Games* by Jessie H. Bancroft, and *Among school gardens* by M. Louise Green.

See also **UNIVERSITIES AND COLLEGES.**

**EDWARD VII.** King of the United Kingdom of Great Britain and Ireland and of the Dominions Beyond the Seas, Emperor of India, died May 6, 1910. King Edward was born on November 9, 1841, the second child and oldest son of Queen Victoria and the Prince Consort, Albert. He was christened Albert Edward. On January 22, 1901, he succeeded his mother, Queen Victoria.

He received careful training as a boy from his father and his mother, and at the hands of private tutors. At the age of eighteen he spent several months in Edinburgh University where he studied chemistry under Lord Playfair, Roman history under Dr. Schmitz, and Italian, French and German under other teachers. In the meantime he exercised with the Sixteenth Hussars. After completing his studies in Edinburgh he went to Oxford and was entered as an undergraduate in Christ Church College. Here

he spent one year attending the lectures of the most distinguished teachers, among whom were Professor Max Müller and Professor Goldwin Smith. He also was in Cambridge for four terms. His early education, however, was not confined to study, but included travel and visits to foreign lands. In the celebrated visit paid by the Queen and Prince Albert to the Emperor Napoleon in August, 1855, Prince Edward and his sister accompanied their parents. At fourteen years of age, after a walking tour in the west of England, he went to Germany. A tour of Ireland followed in 1858 and in the following year, when he was already legally of age, he started on a Continental tour, travelling *incognito* as Lord Renfrew. More important than these journeys, however, were visits to Canada and the United States and a tour in the Holy Land and Egypt.

In 1860, in fulfillment of a promise made several years before, he went to Canada for the special object of opening the great railway bridge across the St. Lawrence at Montreal, and laying the foundation stone for the building at Ottawa in which it was intended that the future Canadian Parliament should meet. No sooner was it known that the Prince was to visit Canada than a cordial invitation was sent by President Buchanan that he should extend his visit to the United States. This invitation was accepted, as was also one from the municipality of New York City. It was at the same time made plain that from the time of leaving British soil the Prince would drop all royal state, and travel as Lord Renfrew. From the time of the Prince's landing at St. John's, Newfoundland, the tour was an unqualified success. Everywhere the young Prince's tact, good sense and pleasant manners, made a most favorable impression. At Washington the Prince stayed at the White House, and he attended receptions at Detroit, Chicago, New York and other cities. He was everywhere in the United States received with the greatest enthusiasm.

Before the intended tour to the Holy Land could be made, occurred the death of the Prince Consort, on December 14, 1861. This event changed the entire course of Prince Edward's life. Queen Victoria withdrew almost entirely from public life and thus threw upon the Prince of Wales, as he had now become, a multitude of new responsibilities. He was only twenty years of age and yet his father's death placed him of necessity at the head of English society, and made it certain that in a few years the whole of what may be called the social and ornamental duties of the Crown, as distinguished from the political, would fall primarily upon him. It was decided that a portion of the year of mourning should be passed by the Prince at a distance from England, and the opportunity was taken of carrying out the visit to the Near East, which the Prince Consort had wished his son to undertake. In this tour Prince Edward had the companionship of Dr. Arthur P. Stanley, at that time Regius Professor of Ecclesiastical History at Oxford and afterwards Dean of Westminster. The party visited Jerusalem where for the first time in nearly seven centuries the Mosque of Hebron was opened to allow the visit of Christians.

In the meantime the question of the marriage of the Prince was receiving earnest attention, and in September, 1862, it was officially an-

nounced that he was engaged to be married to the Princess Alexandra of Denmark, the daughter of Christian IX. whom he had visited the previous year. They were married on March 10, 1863. On February 5 of the same year, Prince Edward had taken his oath as the Prince of Wales, and his seat in the House of Lords. Upon the Prince and Princess of Wales now devolved the duty of representing the Queen at all public and semi-public functions, and during the forty years that elapsed between the death of his father and his own accession to the throne the Prince performed these duties with unflinching tact and good humor.

In 1868 the Prince and Princess paid a state visit to Ireland, where the Prince unveiled a statue of Edmund Burke, and on their way home stayed for some time in Wales. In November of the same year, they made a long tour of the Continent and after spending several weeks in France, Denmark, Germany and Austria, they passed on to Egypt, remaining some weeks on the Nile. They then went to Constantinople and visited the Crimea and Sebastopol. In November, 1870, the Prince became dangerously ill from typhoid fever and recovered only after the greatest universal anxiety. In 1875 the Prince made a tour of India where he was warmly received by the native rulers. During the years that followed the Prince devoted himself chiefly to his official duties and to the pleasures of social life. In 1887 came the first jubilee of the Queen in which he played an important part. In 1891 occurred the celebrated baccarat case, in which the Prince was obliged to give evidence in a lawsuit. There was at this time much criticism of his actions in playing games of chance in houses to which he was invited. In the same year the Prince George became ill from typhoid fever, and no sooner had he recovered than his elder brother, Prince Albert Victor, the Duke of Clarence and heir-apparent, was attacked by influenza in its severest form. This Prince had just become engaged to Princess Victoria Mary of Teck. In less than a week from his first seizure he died, and Prince George then became heir-apparent.

The remaining years up to his accession were without particular incident in the life of the Prince. The funeral of the Queen took place on February 2, 1901, and the King's first public appearance was at the opening of Parliament in the same month. This was accompanied by a pageantry which, at that time, was an innovation, but to which the people became accustomed during the life of the King. He passed the first year of his reign more or less in retirement and was busily occupied, both in public work and such semi-private affairs as the reorganization of the Palace and the resettling of the resources of the Crown. He had as Prime Minister, Lord Salisbury, who rendered most loyal service.

The coronation of King Edward was set for June 26, 1902, and for months preparations had been made to make it the most splendid and moving spectacle that had been seen in England for generations. On the morning before the day fixed, rumors were circulated of the illness of the King, and soon these became a certainty. He was suffering from perityphilitis and it was found necessary to remove a large internal abscess. Although then in his 60th year the King survived the ordeal, showing remarkable vitality,

and his recovery was so rapid that the coronation could take place on August 9.

King Edward ascended the throne holding the esteem and affection of his subjects to a greater degree than has probably been the lot of any previous English sovereign, and this he retained to the time of his death. He showed a deep interest in the welfare of Ireland and visited that country in 1903 and 1904. He was enthusiastically received, and held court at Dublin Castle. During his reign King Edward visited almost all of the countries of Europe more than once and welcomed their sovereigns and representatives to England as his guests. The influence on the establishment of good relations between countries which he exercised in this way was extraordinary. In 1903 he made visits to Portugal, France and Austria and in 1904 he made a visit to the German Emperor at Kiel, which was the subject of much speculation throughout Europe. In 1906 also he paid visits to the Continent. He was accustomed to spend a portion of each year in the south of France at Biarritz. In 1908 he visited President Fallières of France and in the same year went to Denmark and other places in Scandinavia. In the same year he went to Reval where a meeting with the Czar took place. These visits were returned by the sovereigns of these countries and illustrated the great cordiality of feeling between England and other Continental nations. These visits were often politically important events and were made to some extent with definite political purposes. King Edward's influence, both from his personality and from his relationship with most of the sovereigns of Europe, by marriage or otherwise, made him a potent factor in the politics of Continental Europe and won him the title of "Edward the Peacemaker." The King also took the keenest interest in the politics of England, and here as in foreign affairs he had the grasp of the practical statesman without being exposed to the disturbing influences of personal and party interests.

It is in the domain of foreign affairs that his influence was most widely felt, and it is due to him that Great Britain's relations with France, Germany, Russia, and Austria were, officially at least, uniformly friendly and cordial during his reign. His popularity in the United States counted for much in the friendly relation between the two countries which existed throughout his reign.

The King took keen delight in the pleasures of life and was an ardent sportsman. He hunted big game in India and was a lover of fishing. He was the most prominent figure in the racing field. He maintained a stud of horses and several times horses wearing his colors won the Derby and other great races. He was also interested in agriculture and was one of the largest breeders and exhibitors of live stock in England. Privately he lived the life of a country gentleman and his chief pleasure was in improving his estates and rearing fine stock.

He took great interest in charitable and philanthropic work and he founded and supported a hospital of his own. Institutions like the Salvation Army and the Church Army had his personal encouragement. He instituted the Edward Medal, which with the Albert Medal has been called the Victoria Cross of Civil Life. It was awarded for deeds of heroism by civilians.



EDWARD VII.

1900

He also founded the Order of Merit for distinction in war, science, art, literature and the service of man.

The King's personality was a most attractive one. He was approachable, genial and sympathetic. At the same time he had an abundance of royal dignity and would not tolerate any encroachment on what he considered the respect due his position. His devotion to the routine work which devolved upon him was extraordinary, and even during his last illness it was impossible to prevent his devoting his strength to matters which came up for his consideration.

The King had for some years suffered from emphysema, with an attendant bronchial catarrh. This caused digestive disturbances and other symptoms which gave grave concern to his physicians. On April 7, 1910, he went to Biarritz for a brief rest. He returned on April 27th apparently better and at once took up the thread of his very full life. On April 30 during a visit to Sandringham he apparently contracted a cold. This continued and on May 4 he complained of an irritation in the throat. The conditions revealed to the physicians on examination called for a consultation, and it was found that there was an irritable and catarrhal condition in his throat and other organs. In the meantime, however, the King continued to give important audiences. His condition did not improve and on May 5 he had several severe attacks of dyspnoea and the physicians at once saw that the gravity of the symptoms had increased. He had other attacks of a more dangerous character and on the afternoon of May 6 consciousness began to fail, and death came at 11:45 P. M. of that day. See GREAT BRITAIN.

**EDWARDS, D. M.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**EGG.** See ZOOLOGY.

**EGGLESTON, G. C.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**EGGS.** See AGRICULTURE.

**EGYPT.** A country of northwestern Africa, nominally under the suzerainty of Turkey but practically under the protection of Great Britain. Capital, Cairo.

**AREA AND POPULATION.** Total area, exclusive of the Egyptian Sudan, about 400,000 square miles; of which only 12,976 square miles (the Nile valley and delta) are settled and under cultivation. Total population (1907), 11,287,359 (nomadic Bedouin tribes estimated at 97,381 additional). Of the censused population 10,386,046 were Egyptians, 69,725 Turks, 62,973 Greeks, 34,926 Italians, 20,653 British and Maltese, 14,591 French and Tunisians, 65,162 Sudanese. Engaged in agriculture, 2,315,149; in domestic service, 2,358,506; in manufactures 376,341; in trade, 161,210; in unknown and unproductive occupations, 5,378,076. Cairo had (1907) 654,476 inhabitants; Alexandria, 332,246; Tantah, 54,437; Port Said, 49,884; Mehalla and Kobra, 47,955; Mansurah, 40,279; Assiut, 39,442; Damanhour, 38,752; Fayum, 37,320; Zagazig, 34,999; Damietta, 29,354.

**EDUCATION, ETC.** The oldest known schools are the indigenous "kuttab," which the government has been gradually bringing under departmental supervision by means of awards for efficiency. In 1909 there were 3581 of these kuttab under inspection; with 190,875 pupils (16,852 girls), receiving total grant-in-aid of ££21,479. Total government expenditure on

elementary vernacular education, ££70,577 in 1908. Total schools other than kuttab in 1907-8, 735, with 113,430 pupils (25,134 females); of whom 91,844 were Egyptians, 7929 Greeks, 6379 Italians. According to their religion the pupils were: Mohammedans, 54,186; Christians 51,869 (Copts 28,961); Jews, 7149; others, 226. There are secondary, special, and industrial schools, and 11 professional colleges. Total expenditure of the Ministry of Education 1908, ££450,450 (estimate).

There were in 1907 10,366,826 Mohammedans; 706,322 Copts; 38,635 Jews; 57,744 Roman Catholics; 76,953 Greek Orthodox; 27,937 Eastern Christians. The Mosque and University of El Azhar at Cairo had (1908) 329 professors and 9940 students; the Mosque of El Ahmadi at Tantah, 69 and 3607.

**COMMERCE.** The commerce for three years is given in pounds Egyptian (1 pound Egyptian = \$4.943):

	1907	1908	1909
Imports, mdse.....	26,120,783	25,100,397	22,230,499
"    specie....	7,768,190	4,205,083	7,010,195
Exports, mdse.....	28,013,185	21,315,673	26,076,239
"    specie....	4,736,189	4,671,206	6,457,588

Principal articles of special trade and their value in thousands of pounds Egyptian are given for two years:

	1908		1909	
	Imps.	Exps.	Imps.	Exps.
Textiles* .....	6,456	17,171	5,865	21,576
Cereals, etc.....	3,785	3,158	3,689	3,207
Wood, coal, etc....	3,359	16	2,689	15
Metals, etc.....	2,957	6	1,966	89
Spirits, oils, etc....	1,255	12	1,209	21
Foods and drugs....	1,182	108	1,131	104
Animals, etc.....	1,162	120	944	189
Tobacco .....	861	365	839	366
Chemical prods....	730	22	728	36
Stone, etc.....	657	3	535	3
Skins, etc.....	380	142	361	225
Other animal prods.	91	68	75	59
Rags, etc.....	382	22	355	24
Dyestuffs .....	266	22	240	29
Various .....	1,577	83	1,602	130
Total .....	25,100	21,316	22,230	26,076

\* Imports of manufactured cotton in 1908, ££3,276,250; in 1909, ££3,046,793. Exports of raw cotton in 1908, 6,348,493 cantars, valued at ££17,091,612; in 1909, 6,952,480 cantars, ££21,477,745.

Countries of origin and destination and value of trade in thousands of pounds Egyptian:

	Imports from		Exports to	
	1908	1909	1908	1909
Great Britain ....	8,265	6,744	11,148	13,100
British Colonies..	1,273	1,149	159	123
France .....	2,916	2,899	1,681	2,294
Turkey .....	3,193	2,042	386	502
Aus.-Hun. ....	1,632	1,433	1,030	1,292
Italy .....	1,188	997	704	736
Russia .....	974	759	1,378	1,516
Belgium .....	726	678	82	86
China, etc.....	437	538	356	466
America .....	559	559	1,157	1,914
Greece .....	379	379	17	38
Persia .....	69	75	•	•
Morocco .....	47	28	2	•
Total .....	25,100	22,230	21,316	26,076

\* Less than ££1,000.

**SHIPPING.** Vessels entered (1909), 2035, of 3,431,781 tons (707, of 1,347,581 tons, British); cleared, 2040, of 3,433,972 tons (705, of 1,340,566 tons, British). Number of vessels

of all kinds passing through the Suez Canal in 1909, 4239, of 21,500,847 gross tons (2561, of 13,242,016 tons, British). Receipts of the company in 1908, £4,340,235; in 1909, £4,825,707.

**PRODUCTION.** Of the total population, 61 per cent. (the fellahen) are dependent upon agriculture. Area under cultivation (1908), 6,448,000 feddans (1 feddan=1.038 acres). Under wheat, 1,168,166 feddans; corn, 1,977,705; cotton, 1,640,415; sugar cane, 38,562; rice, 248,763; beans, 541,085; barley, 440,606. Cotton crop (1908), 7,234,669 cantars (1 cantar=44.9 kilograms). The entire cotton area depends upon irrigation, as there is practically no rainfall during the summer. Near the Nile the water level of the canals is higher than the adjacent land levels, and getting the water from the canals to the fields is a simple matter; nearer the desert borders it is much below that of the fields, and water wheels, operated by camels or horses, are used to bring the water up to the land level. Three crops a year are produced: cereals, sown in November, harvested in May or June; cotton, sugar, and rice, sown in March, harvested in October or November; rice, corn, millet, and vegetables, sown in July, harvested in September or October. A large part of Assiut and Beni Suef has now perennial irrigation. The level of the Assuan dam is to be raised by 6 metres, doubling its capacity; a new barrage has been constructed at Esna. Though the *corvées* has been abolished, the people are called out in emergencies, such as the breaking of the Nile banks in flood time. In 1907, 16,898 men were called out.

About 1,000,000 tons of salt are produced annually, and turquoises are obtained in the Sinai Peninsula.

**COMMUNICATIONS.** Length of State railways 1464 miles Dec. 31, 1908. Dec. 31, 1909, 1465 miles (exclusive of the Sudan military railway to Khartum); agricultural light railways, privately owned, about 780. Working expenses in 1908 (State railways), £E2,082,231; gross receipts, £E3,435,451. Length of telegraph lines (1909), 2893 miles; wires, 12,952; telephone wires, 2088; telegraph offices, 328; post-offices, 1574.

**FINANCE.** The unit of value is the Egyptian pound, worth \$4.943. Revenue and expenditure for three years are given in pounds Egyptian:

	1907	1908	1909
Revenue ....	16,367,818	15,521,775	15,887,313
Expenditure.	14,286,413	14,408,144	16,226,841

The estimated revenue for the year 1910 reached £E15,350,000 (direct taxes, £E5,565,090; other taxes and dues, £E5,083,000; receipts from revenue-earning administrations, £E3,725,000); expenditure, £E15,150,000 (costs of administration, £E4,898,426; tribute and debt, £E4,595,594; expenses of revenue-earning administrations, £E2,492,306; defense £E867,006; pensions, £E540,000; Sudan deficit, £E325,000; civil list, £E281,803. Public debt, May, 1910, £95,195,140 (sterling).

**GOVERNMENT.** The khedive (Abbas Hilmi, since January, 1892), is the head of the government. In him and his ministers is also vested the final legislative power, the legislative council and the legislative assembly (46 of whose members are elective) being but consultative bodies. The practical administrative head of

the government is the British agent, consul-general, and minister plenipotentiary (since 1907 Sir Eldon Gorst); and no financial measures can be taken without the concurrence of the British financial adviser (1910, H. P. Harvey).

**ARMY.** The Egyptian army on a peace basis is made up of about 19,000 officers and men, although there are always on the rolls for conscription about 150,000 young men, for by law all male inhabitants are liable for military service, six years in the army, five years in the police, and four years in the reserves. As a result the troops are carefully selected and a number (188 in 1910) of British officers are attached to the Egyptian army, which is commanded by a British officer, Lieut.-Gen. Sir Reginald Wingate, who bears the title of Sirdar and Governor-General of the Sudan. The artillery in particular exhibit the effect of the training of the European officers and are well equipped. A horse battery has Krupp light guns and is drawn by Syrian horses, while the field batteries are packed by mules with a second line of camels. The cavalry is made up from the fellahen of the Delta. In 1910 the army was reported as made up of 18,273, including 789 cavalry, 619 in camel corps, Arab battalions 206, artillery 1258 and 10,280 infantry. In addition to this native force there is a British army maintained in Egypt and this in 1910 consisted of 6265 men, comprising 1 cavalry regiment, 1 horse battery, 1 garrison company, 1 company royal engineers, 4 infantry battalions, the third battalion of the Coldstream Guards and other details. As in 1909 Gen. Sir J. G. Maxwell was in command. For the maintenance of this force the Egyptian government contributed £150,000.

#### HISTORY.

**POLITICAL UNREST.** The Nationalist agitation, which has been the chief feature of Egyptian history in the last few years, continued during 1910. It was marked early in the year by an atrocious crime, the killing of the Egyptian Premier, Boutros Pasha, who was shot by a student on February 20. The murderer was a Cairo chemist, named Ibrahim Wardani, who had been Secretary of the Young Egypt Geneva Congress in 1909 and was a correspondent for a native paper. He appeared to have no personal grudge against the victim, but to be actuated merely by hostility to the British supremacy. Sir Eldon Gorst, commenting on the crime, declared that he had no hesitation in saying that the leaders of the Nationalist party were morally responsible for the murder. He said that the murderer in defense of his deed had merely reiterated the accusations against Boutros which had appeared in the columns of the Nationalist press. By a strange irony, he added, the blow had fallen upon the first genuine Egyptian who had risen to the highest position in his country. Lord Cromer pronounced Boutros Pasha the ablest of the Egyptian ministers and a man thoroughly devoted to his country's true interests. The press generally, including even the Nationalist papers, united in denouncing the crime. The murderer was condemned to death on May 13, and hanged on June 28. Mohammed Said Bey became Premier of the new Cabinet. Mr. Theodore Roosevelt, who arrived at Cairo in March when public attention was concentrated on this crime, became much interested in Egyptian affairs and

upon his visit to London delivered a speech (May 31) on England's position in Egypt, which caused widespread comment. After saying that England had given Egypt the best government that it had ever had, recent events, and especially the assassination of Boutros, showed that it had made the mistake of attempting to do too much in the interests of the Egyptians themselves. He declared that in such a situation organized timidity and sentimentality might cause more damage than even violence and injustice. "Either you have the right to be in Egypt or you have not; either it is or it is not your duty to establish and keep order. If you feel you have not the right to be in Egypt, if you do not wish to establish and keep order there, why, then by all means get out of Egypt. If, as I hope, you feel that your duty to civilized mankind and your fealty to your own great traditions alike bid you to stay, then make the fact and the name agree and show that you are ready to meet in very deed the responsibility which is yours." The speech was condemned in certain quarters as discourteous to the government which was showing Mr. Roosevelt hospitality. On the other hand, Sir Edward Grey declared that Mr. Roosevelt had apprised him of his views beforehand and he added that he had seldom listened to anything with greater pleasure. Mr. Balfour, the Opposition leader, said that he never heard a speech dealing with the British problem "which was less deserving of the charge of being an insult to the country whose hospitality the speaker was at the time enjoying."

In the opinion of many such an outrage as the murder of Boutros brought discredit on the experiment of giving the Egyptians a larger share in the management of their own affairs. The experiment had been begun before Lord Cromer left Cairo and seemed a practicable compromise between the policy of evacuation and that of complete British control. But the government offices were full of disaffected persons, some of whom were members of the Nationalist club. Many secret societies were formed and plots against the British supremacy were constantly springing up. It was charged that the government showed little vigor in repressing these tendencies. On June 13 in a speech in the House of Commons, Sir Edward Grey declared that it was impossible to use the Legislative Council or the General Assembly for the improvement of Egypt, if they are to become, as has lately seemed to be their tendency, a mere instrument of the movement against British supremacy. He also declared that if the Egyptian Nationalists should continue their agitation against the British occupation it would be necessary to take active measures for the protection of Egyptian ministers. In view of the Nationalist agitation, it was not possible for the government to relax its repressive policy. On June 14 the Council of Ministers passed a measure giving the Assize Courts jurisdiction in press cases and also a measure for repressing secret societies, overruling the action of the Legislative Council, which had tried to reject or greatly modify these measures. Several sentences were imposed for seditious publications, and effective military preparations were taken for putting down disorders.

**GENEVA CONFERENCE.** The annual meeting of the permanent committee of the Young Egypt

party was held on September 14 under the presidency of Mohammed Fahmy. Mr. Keir Hardie was invited to take the chair and in a speech in which he attacked the speeches of Mr. Roosevelt and Sir Edward Grey, he urged unity of the Young Egyptians if they would rid themselves of English supremacy and also advised them to repudiate criminal or illegal methods. Resolutions were passed protesting against the continuance of British occupation and against Sir Edward Grey's speech, urging the issuance of a manifesto in England which should explain the real state of things. The Nationalists endeavored to secure permission from the French government to hold an Egyptian Nationalist Congress at Paris on September 21, but this was refused.

**EGYPT, EXCAVATIONS IN.** See **ARCHÆOLOGY.**

**EGYPTIAN MOTH.** See **ENTOMOLOGY.**

**EGYPTIAN NATIONALIST CONFERENCE.** See **EGYPT.**

**EHRlich's "606."** See **ARSENIO-BENZOL.**

**ELASTICITY OF CURRENCY.** See **BANKS AND BANKING.**

**ELECTION OF SENATORS, DIRECT.** See **DIRECT ELECTION OF SENATORS.**

**ELECTRIC ANAESTHESIA.** See **ANÆSTHESIA.**

**ELECTRICAL CHEMISTRY.** See **CHEMISTRY, INDUSTRIAL.**

**ELECTRICAL ENGINEERING.** See **TELEGRAPHY; TELEPHONY; WIRELESS TELEGRAPHY; WIRELESS TELEPHONY; ELECTRIC RAILWAYS.**

**ELECTRICAL INDUSTRIES.** Nineteen hundred and ten was a year of average growth in the electrical industries, the aggregate advance in manufactures and earnings being about 15 per cent. The comparative estimates for 1909 and 1910 prepared by an authoritative engineering journal were as follows:

	1909.	1910.
Electrical Manufac.....	\$275,000,000	\$300,000,000
Elec. Rail. Earnings.....	475,000,000	520,000,000
Central Station Earn.....	250,000,000	300,000,000
Telephone Earnings .....	250,000,000	275,000,000
Telegraph Earnings .....	60,000,000	65,000,000
Isolated Plant Earnings..	75,000,000	100,000,000
Miscel. Electric Service..	50,000,000	75,000,000
Total.....	\$1,435,000,000	\$1,635,000,000

**ELECTRICAL PHENOMENA IN GASES.**

See **PHYSICS.**

**ELECTRIC TRUST.** See **TRUSTS.**

**ELECTRIC AUTOMOBILES.** See **AUTOMOBILES.**

**ELECTRIC BATTERIES.** The progress of the Edison nickel-iron storage cell overshadowed all other achievements in the battery field during 1910. This cell has had a nominal commercial status for over five years, but recent improvements have given it a great impetus. The electrolyte consists of potassium hydrate with a small addition of lithium hydrate. The positive plates of the new type consist of a nest of small steel tubes filled with nickel oxide and flakes of electrolytic nickel. The negatives are nickel-plated steel grids with flat rectangular pockets.

The lead-acid cell suffers a constant loss of capacity when in service, deteriorates badly when left idle, especially if discharged and is severely injured by short circuits. Its plates are liable to warp or buckle from unevenly distributed chemical action and a deposit settles to the base of the cell which tends to cause a short circuit

in time unless occasionally removed. The tests reported indicate that the nickel-iron cell has none of these defects. It tends to increase in capacity if the electrolyte is properly maintained. Short circuits and periods of idleness have little detrimental effect upon it. Cells taken from a motor truck after running 17,000 miles gave better tests than new cells under laboratory conditions. A feature of Edison cells which assures them extensive use in the electric vehicle field is their large storage capacity per unit of weight, 14 watt-hours per pound from the smaller cells and 16 from the larger.

A competitor for the Edison cell has been invented by Morrison. It also has a caustic potash electrolyte, but its positive plates consist of an oxidized amalgam of copper and its negatives of zinc chromite. It is claimed to have a capacity of 25 watt-hours per pound and to be almost indestructible.

The lead-acid cell advanced but little in 1910. A new process of plate manufacture was developed by Salom, who produces the active materials chemically and incorporates them into active grids by hydraulic pressure without electrolytic forming. It is claimed that the plates so obtained excel in durability and maintenance of capacity.

The popularity of electric storage battery vehicles of every type increased greatly in 1910. Experience has shown the storage battery truck to be remarkably reliable and efficient for heavy commercial haulage. Central station managers have worked actively to promote electric vehicles as the supply of current for charging is a most attractive off-peak load and one which can be furnished very profitably at low rates within restricted hours.

Large installations of batteries for load regulation and stand-by service were very few. In almost every case preference was given to steam turbine generating equipment, which has much of the flexibility of the storage battery and is much cheaper. The storage battery has been expected to play an important part in the application of gas engines to electric generation, but the cost of such combination has remained so high as to discourage such installations.

A new primary cell known as the Bleack-Love was brought out in England. It is a two fluid cell and gives a constant pressure of 2.7 volts with a large current capacity.

#### **ELECTRIC HEATING AND COOKING.**

Continual progress in the introduction of heating and cooking devices operated by electricity was noticeable throughout the year. Central stations, recognizing the importance of this kind of load, have, through their business-getting departments, made great efforts to popularize the use of that kind of apparatus; and a great variety of such energy consumers is obtainable. It must be said, however, that the competition set up by gas is a powerful restraining factor to the adoption of electric cooking apparatus; and what is equally important, these latter give their most satisfactory results only when used with intelligence, which unfortunately is not a common characteristic of household servants. The fact that electric toasters, coffee percolators, chafing dishes, plate warmers, etc., are being increasingly sold and used, shows a growing understanding by the public of the use and management of them.

Of the portable heating devices, electric flat-irons have had the largest sale, and next to

these, electric heating pads. Where heating of rooms and apartments is common, there is a tendency to abandon the direct-radiation resistance coil in favor of devices in which the heat is absorbed by water in a tube or jacket surrounding the coil, thus making it possible to store heat during times of small demand for lighting, and incidentally to furnish hot water for domestic use. Furthermore, it is calculated that in order to compete with gas selling at \$1 per thousand feet, electricity must be sold at the rate of 3 cents per kilowatt hour. As regards electric heating for industrial purposes, slow progress is reported at present, and nothing notable in the way of apparatus was brought out during the year.

#### **ELECTRICITY IN RURAL DISTRICTS.**

While the adoption of electricity by the farmers on a general scale can scarcely be said to be noticeable, yet, taking the United States as a whole, it is increasing in use for a variety of purposes through widely scattered regions. In many places, gasoline engine generator sets are in use for lighting farm dwellings, barns and outbuildings; in other localities, where a transmission line is available, energy is sold to farmers along or adjacent to such a line. In a few instances, those living along the route of interurban trolley lines are supplied from the trolley wire at 500 volts, direct current, on a grounded circuit, using five lamps in series; and occasionally a 500 volt motor for pumping water has been installed. There is as yet no uniformity in charges for energy in the cases cited. The use of necessarily small transformers for supplying individual customers is objectionable on the score of inefficiency; and the various questions as to which party is to bear the expense of the pole line construction from the main transmission line to the often remotely situated farm buildings, lamp renewals, maximum demand, etc., are not fully worked out.

For irrigation purposes, there is a real demand, not limited to any State or locality, for cheap power to operate pumps; and in this direction there is a noticeable growth in the use of electricity which is fostered and assisted by the awakening of the people to the necessity of intensive methods of cultivation, where success may depend largely on the cost of irrigation pumping.

**ELECTRIC LAMPS.** See **ELECTRIC LIGHTING.**

**ELECTRIC LIGHTING.** The exceptional progress in the art of electric lighting which marked the three preceding years was well sustained in 1910. It was marked, however, by the widespread use of the new illuminants and great improvement in the standards of illumination rather than by the introduction of new forms of lamps. The new lamps were first placed on the market with a full realization of their defects and the resources of investigation and invention have been assiduously employed to remove them. During the year the performance of metal filament lamps was improved fully 50 per cent., price, durability, efficiency and maintenance considered. The tungsten lamp of large size arrived and at once became the active rival of the enclosed arc in what had previously been the latter's exclusive province. The 500-watt lamp was auspiciously launched and the 1000-watt lamp promised by American manufacturers. The latter type is already produced in Germany. At the other extreme tungsten lamps giv-

ing 16 candlepower at 110 volts were introduced.

The announcement of a commercial process of producing ductile tungsten was easily the most noteworthy event of the year in the incandescent lamp realm. Drawn filaments were made for experimental purposes only. An extremely severe test of experimental lamps was conducted in connection with the acceptance trials of the battleship *Delaware*. The drawn wire lamps withstood the concussion from broadsides far better than carbon filaments of the sturdiest type. When the lamp is perfected for commercial use it is predicted that it will equal in efficiency and surpass in durability all its predecessors of every type. As malleable tungsten is stronger than the best steel and is extremely refractory it is expected that it will find a large place in other arts. The metallized carbon filament has undergone constant improvement. There is much evidence that the possibilities of carbon as a filament material are far from exhausted and that its efficiency and strength may be yet so improved as to assure its permanent place in the art.

There has been a marked tendency to minimize the candle-power rating of incandescent lamps. American makers have now substituted a three-voltage rating, in connection with a wattage rating. Each voltage corresponds with a certain efficiency and life performance and the buyer may select the lamp best suited to his conditions.

The progress in the art of arc lighting was largely along commercial lines with minor improvements in design and performance and no innovations of importance. Magnetite arcs of high power increased greatly in favor as street lighting agencies. The titanium carbide arc which was designed to combine the efficiency of the metallic arc with the advantages of alternating current supply has proven a disappointment and has ceased to be a commercial factor in the art. In the development and use of flame arcs Europe is still in advance of America though the domestic types are steadily improving.

An unprecedented amount of research has been devoted to the theoretical side of light production, especially in the field of selective radiation. It has been quite definitely established that metal filament lamps owe much of their gains in efficiency to this principle. Researches on the light of the fire-fly and other natural sources of phosphorescence attracted great interest, for it is suspected that the profound secrets concealed in these extremely efficient light sources may some day make revolutionary changes in the practical art of light making. The wide diversity of color values displayed by recent illuminants has brought a difficult photometric problem to a state of commercial importance, as it is necessary to rate such lamps in terms of existing standards. No complete solution of the color photometry problem has been reached, but the work of 1910 has brought it much nearer. Announcement was made that a phosphorescent reflector has been devised for application to mercury arcs. The surface is coated with a material which transforms certain of the blue and green rays which fall upon it into red and thus improves the color of the light for general use.

The pessimistic fears that central station revenues would be greatly reduced by the general use of new high efficiency lamps have not been realized though there has been a very active

movement so to modify the rates for lighting service that the advantages of cheaper light may be equitably shared by the central stations and consumer.

**ELECTRIC MOTORS.** See AERONAUTICS; AUTOMOBILES; DYNAMO-ELECTRIC MACHINERY, ETC.

**ELECTRIC POWER TRANSMISSION.** See TRANSMISSION OF POWER.

**ELECTRIC PUMPING STATION.** See PUMPING MACHINERY.

**ELECTRIC RAILWAYS.** Electric traction developments in 1910 were more conspicuous in the operating departments than in the realm of new construction. The great metropolitan electrification schemes so prominent in the years immediately preceding culminated in the inauguration of service through the Hudson River, Manhattan Island and East River tunnel system in connection with the superb new Pennsylvania terminal at New York, while the New York Central terminal was urged forward toward completion. It was announced that the New Haven system was about to construct connections via Long Island with the Pennsylvania terminal system. A report of the New Haven and New York Central systems on the proposed electrification of the Boston terminal zone estimated the cost at \$40,000,000 and favored the gradual introduction and extension of electric motive power. No immediate action was promised. Agitation for terminal electrification continued actively in Chicago and Philadelphia, but without concrete progress.

**SINGLE PHASE INSTALLATIONS.** The acquisition of the control of the Boston & Maine by the New Haven system and its decision to proceed actively to electrify the Hoosac tunnel in western Massachusetts together with its approaches, the Harlem River branch and the New York, Westchester and Boston branch, all with single-phase, alternating-current equipment continuous in its main features with its present main-line system is noteworthy, indicating as it does the practical commitment of the great New England trunk lines to the single-phase type of electrification. Other important extensions of single phase operation were made on the Spokane and Inland Empire, the Rock Island and Southern and the Chicago, Lake Shore and Southern railways. The latter road did noteworthy work with single-phase, multiple-unit trains, handling eleven cars at high speed with a single master controller.

Single-phase installations of magnitude were also made in Europe, the most noteworthy being that of the Midi Railway of France which began the electrification of 70 miles with a 12,000-volt trolley system, using motor cars for passenger traffic and locomotives for freight. Ultimately the entire 200 miles between Toulouse and Bayonne will be similarly equipped, forming the most comprehensive electrification scheme yet undertaken in France. Though much criticised and suspiciously regarded in the past, the record of the single-phase system in 1910 was one of great progress, both in equipment and operating records, pointing to a great future in fields of traction where the power transmission problem is the dominating one.

**THE 1200-VOLT DIRECT CURRENT SYSTEM.** Equal success attended the 1200-volt direct-current system of interurban traction. The most notable new installations were the extensive suburban system of the Milwaukee Electric Rail-

ways and Light Co., the Washington, Baltimore and Annapolis line and the Aroostook Valley system. The motors of these cars are wound for 600 volts and insulated for 1200. Interpoles are used to assist commutation. The motors are operated in sets of two in series, the line voltage being supplied from an alternating current transmission system by two synchronous converters run in series on the direct-current side. The cars and their equipment are much lighter and more economical of power than single-phase cars.

**THE THREE-PHASE SYSTEM.** The three-phase system using induction motors was largely extended on the state lines of Italy, following the great success of the Valtellina line. For this work an appropriation of \$60,000,000 was made available. Forty 60-ton locomotives of 800 horsepower each were ordered. Each has two 3000-volt three-phase induction motors which may be connected in series or in parallel, giving two inherent speeds with intermediate steps provided by resistance control. These locomotives are noteworthy for their great haulage capacity per ton, which is more than twice that obtainable with direct-current or single-phase motors.

**IMPROVED CONSTRUCTION.** The success of the new types of American locomotives brought out in 1909 points to the marked superiority of large motors mounted on the main frames over the earlier types with truck-suspended motors. The reduction of dead car weight has engaged engineers for many years. Cars of exceptionally light construction operated by storage batteries of the new Edison type were experimented with by cross-town lines in New York formerly drawn by horses and mules. The marked success led to extensive installations and the early elimination of animal motive power is expected. The storage battery car revives an old idea discarded because of the fatal defects of lead cells. The new batteries are light, efficient and capable of withstanding the severest service without rapid deterioration.

**TROLLEY-BUS SERVICE.** The inauguration of trackless trolley-bus service in the suburbs of Los Angeles opened a new field in American traction. The development of a subway car suited to the needs of moderate sized cities was announced by DuPont, whose experimental installation at Cleveland attracted much favorable attention.

**CAR AND TRAIN OPERATION.** Much attention was paid to the problems of economical car and train operation by the important rapid transit companies. Checks on the efficiency of motormen made by the Manhattan Railway, using car metres and coasting recorders, brought out the fact that skillful handling of trains with rapid acceleration and full use of coasting produced a saving of energy of 36 per cent., as compared with careless operation. The money value of such a saving, which in the case of elevated trains is from two to three times the wage of experienced motormen, emphasizes the human factor in economical management. Satisfactory trials were made of ball and roller bearing for motor and car journals, the energy-saving ranging from 15 per cent. to 21 per cent. in comparison with common bearings.

**NEW YORK'S SUBWAY QUESTION.** In the field of public relations the struggle between contending interests in New York attracted great attention. The year closed with the transportation commission of the city apparently committed to the non-competitive development of subway traffic by the Interborough Rapid Transit Co.,

despite a considerable weight of public opinion favoring competitive development. For an account of the electrification of the Pennsylvania, Michigan Central and Cascade tunnels, of a suburban branch of the New York Central and of other electrification work completed during the year, see **RAILWAYS**.

**ELECTRIFICATION OF RAILWAYS.** See **RAILWAYS**.

**ELECTROLYTIC COPPER.** See **COPPER**.

**ELECTRON.** See **PHYSICS**.

**ELEMENTS.** See **CHEMISTRY**, and **ATOMIC WEIGHTS**.

**ELIOT, C. W.** See **LITERATURE, ENGLISH AND AMERICAN, Political and Social Science**.

**ELLIOT, S. R.** See **LITERATURE, ENGLISH AND AMERICAN, Biography**.

**ELLIOTT, AARON MARSHALL.** An American philologist and educator, died November 9, 1910. He was born in Wilmington, N. C., in 1846 and graduated from Haverford College in 1866 and from Harvard College in 1868. He studied in France, Italy, Spain, Germany, and Austria until 1876. From that year until 1894 he was associate in Romance Languages at Johns Hopkins University. He was associate professor from 1894 to 1892 and professor from 1892 until the time of his death. His researches in mediæval French languages were especially notable. Among the best known of these were the works of Marie de France. Dr. Elliott was for seven years secretary of the Modern Languages Association of America and was a member of many scientific associations, including the American Philological Association and the American Archaeological Association. In 1907 he received the decoration of the Cross of the Legion of Honor in connection with his work in Romance language and literature. In 1900 he was a delegate from the United States to the Paris Exposition.

**ELLIS, JOHN W.** An American banker, died December 28, 1910. He was born in Williamsburg, Ohio, in 1817 and was educated at Kenyon College. At the age of 18 he engaged in the banking business in Cincinnati, where he was successful and came to be regarded as the leading financier of that city. When the national banking system was organized under President Lincoln's administration he was among those called into consultation by Mr. Lincoln. He was president of the first national bank organized in the United States. He was afterwards president of the Chicago, Hamilton and Dayton Railroad and in 1870 became manager of a banking house in New York City. Ten years later he retired from active business life.

**ELLIS, L. M.** See **LITERATURE, ENGLISH AND AMERICAN, Biography**.

**ELMAN, MISCHA.** See **MUSIC**.

**EMBRYO.** See **ZOOLOGY**.

**EMERGENCY CURRENCY.** See **CURRENCY**.

**EMERSON, RALPH WALDO.** See **LITERATURE, ENGLISH AND AMERICAN, Biography**.

**EMIGRATION.** See **IMMIGRATION AND EMIGRATION**.

**EMPIRICISM.** See **PHILOSOPHY**.

**EMPLOYERS' LIABILITY. PROGRESS IN 1910.** This subject received continuous discussion and there were a number of new laws passed concerning it during the year. These served to greatly advance the movement away from the traditional form of employers' liability to the newer form of workmen's compensation

for unavoidable injury while at work. National conferences were held at Washington in January and at Chicago in June. The special commissions in New York, Wisconsin, and Minnesota either continued investigations or reported their results; new commissions were appointed in Illinois, Ohio, Massachusetts, and New Jersey. Congress provided for a commission with an appropriation of \$15,000 to inquire into employers' liability and workmen's compensation, authorized the Interstate Commerce Commission to investigate the causes of accidents, and amended the Federal law so as to facilitate workmen's suits for damages. A committee of the National Association of Manufacturers was sent abroad in the fall to investigate the practical workings of the compensation schemes of Europe. A previous committee of this Association did not express itself favorably disposed toward the strong tendencies to break down the common law doctrines of assumed risks, contributory negligence, and the fellow servant rule, but it gave warning that many forces were operating to institute the English system of workmen's compensation.

**INDUSTRIAL ACCIDENTS.** Some statistics of industrial accidents were given by Mr. John H. Hammond at the Conference on Uniform Legislation at Washington, D. C., January 18. He stated that the disaster at the Cherry, Illinois, coal mine cost 300 lives and \$500,000 in direct losses to the public and the coal companies. The average number of miners killed per 1000 employed in various countries he gave as follows: France, .91; Belgium, 1; Great Britain, 1.28; Prussia, 2.06; United States, 3.39. Moreover mine casualties had increased in the United States while decreasing in Europe. Very similar ratios were given by Mr. John Mitchell in the *American Federationist*; he showed that the total number of persons killed in the mines in twenty years preceding 1909 was 19,775 in the United States; 10,319 in Great Britain; 8460 in Prussia and 2944 in France. According to the *Insurance Age* the total number of wage earners killed by industrial accidents in the United States is between 30,000 and 35,000, while the number of non-fatal accidents exceeds 2,000,000.

**WORKMEN'S COMPENSATION.** The development of sentiment in favor of workmen's compensation was advanced by the report of a special committee of the New York Bar Association at its annual meeting in February. This committee favored the shifting of the burden of accidents from workmen and employers to the industry, and consequently to the consumer, by means of definite compensation prescribed by law. It declared for the English idea of workmen's compensation as against the German idea of workmen's insurance. In her volume on *Work—Accidents and the Law*, one of the volumes of the *Pittsburg Survey*, Miss Crystal Eastman drew the conclusions that many accidents are inevitable in the nature of modern business, and that they can be reduced, not by throwing heavier burdens of risk on imperfect human nature, but by legal regulation of industries. She pointed out that accidents are being reduced both by limitation on production, and such as shorter hours, slower speed and restriction on the employment of inexperienced persons and by the use of the police power, such as greater safety requirements, better inspection and more effective warnings and signals.

**CHANGES IN THE NEW YORK LAW.** The

New York State Commission, appointed early in 1909, made its report to the State legislature on March 19. The commission was continued with twice the original appropriation to investigate the subjects of cause and prevention of accidents, unemployment and scarcity of farm labor. As to the then existing system of employers' liability the commission stated that it was economically unwise and unfair, and, in operation, wasteful, uncertain, and productive of antagonism between workmen and employers; that it was satisfactory to none and tolerable only to those who practically disregarded their legal rights and obligations; that its evils were most marked in hazardous employments; and that workmen do not and cannot provide adequate accident insurance, and therefore the heaviest burdens fall upon those workmen and families least able to bear them. On the basis of its inquiries the commission formulated two bills representing the most advanced American legislation on this subject. These were accepted by the legislature and became effective September 1. The first of these modifies the common law principles and presents a voluntary compensation plan; the second requires compulsory compensation for accidental injuries in certain specified dangerous occupations.

The common law principles, that is, the fellow servant doctrine, the doctrine of contributory negligence, and the doctrine of assumption of risk, are greatly modified. It is provided that the injured worker may recover if the fellow servant whose negligence caused the injury is in any degree whatever in authority under the employer. The burden of proof as to contributory negligence is shifted from the employee to the employer. And it is provided that the worker shall not be deprived of compensation for assuming the risk, even though he continue at work, if, through any fault on the part of the employer, there exists danger which the employer knows of or could discover by reasonable inspection. In this same law is the provision of an optional compensation plan which may be applied to any industry. It is made possible for any employer and any of his employees in any trade to agree in writing to institute the statutory provisions for workmen's compensation. In making such an agreement the employee surrenders his right to sue for damages in court. This agreement may be cancelled by either party on sixty days notice. No compensation is to be given for an injury that does not disable the employee for at least two weeks; the rates of compensation are the same as in the compulsory sections noted below.

Compulsory workmen's compensation is required in the following occupations: bridge building; all structural steel work; tunnels and subways; work on scaffolding twenty or more feet in height; labor done in compressed air; construction, operation or repair of apparatus charged with electric currents; work near explosives; and railway operations. In any of these trades workmen injured as the result of necessary risks or of negligence on the part of the employer or his agents are entitled to compensation without suit at law on the basis of a scale set forth in the law itself. Maximum compensations are provided by the statute; thus, for death of a husband, the compensation shall be 1200 times his average daily wage, but shall not exceed \$3000; for serious injury the compensation shall be one-half the average weekly wage,

but shall not exceed ten dollars per week. No compensation, however, can be obtained when the accident is due to the serious misconduct of the worker. In case of a just claim the worker must make a choice between suing the employer for damages or the acceptance of the compensation provided in the law; having chosen one of these alternatives, he cannot later, if dissatisfied, choose the other. Some doubt was expressed as to the constitutionality of this mandatory law on the ground that it constitutes the taking of property without due process of law; but the commission held the law to be a legitimate exercise of the police powers of the State. Though these laws are far below the English standard, they were deemed sufficient as a first trial step in the direction of a complete application of the principle of compensation as against employers' liability.

At the annual meeting of the Liability Insurance Association it developed that one of the effects of the foregoing legislation was to raise employers' liability insurance rates by about 20 per cent. It was charged by some of the insurance officers that many contractors were not taking into account the increased liability imposed upon them by the law, but planned to escape in the case of a big accident by declaring themselves bankrupt.

The constitutionality of the New York law was attacked by the South Buffalo Railway Co., in October, on the ground that it deprived the employer of property without due process of law, denied him the equal protection of the laws, violated the right of trial by jury, and limited the amount recoverable as damages for injury resulting in death. None of these pleas was recognized. Moreover, the court held that, while there is no absolute certainty that the legislature may impose liability upon an employer without fault on his part, yet "every presumption is in favor of the constitutionality of the act;" the legislature may rightly shift part of the responsibility for injuries arising out of the necessary risks of an employment from the employee to the employer. The case was appealed.

**OTHER LEGISLATION AND DECISIONS.** The National Civic Federation through its Department of Compensation for Industrial Accidents and their Prevention began, in October, the collection of data with a view to the general substitution throughout the country of workmen's compensation for employers' liability. The work of the Federation was divided between various committees having as their duties the drafting of a law to serve as a model for uniform State legislation; the investigation of the cost of the proposed substitution; and the formulation of proposals for the improvement of factory inspection with a view to the prevention of accidents.

Workmen's compensation laws were considered by the legislatures of New York, Wisconsin, Minnesota, New Jersey, Illinois, Massachusetts and perhaps some other States. Congress slightly modified the Federal employers' liability law and a bill for Federal compensation was introduced. Some of these bills provided for accident insurance on a contributory basis, both employees and employers to share the expense, but most of them looked to definite compensation without contributions from workers. In Wisconsin the Supreme Court held that a non-resident alien cannot sue for damages due to

the death of a relative because the statutes are not framed for his benefit. This was in harmony with a decision of the United States Supreme Court in 1909, and, on account of the multitudes of alien workers in the country, discloses a serious defect in legislation. New laws in Ohio and Georgia increased the responsibility of the employer for the negligence of his agents and reduced the force of the common law doctrines, the Georgia act applying only to railroads. The violation of a safety statute by the employer was declared to make contributory negligence of the employee immaterial. In both States also the doctrine of assumption of risks was abrogated in industries covered and contracts to forego the benefits of the law were declared void. Ohio declared contributory negligence of employee no bar to recovery when employer's negligence is gross in comparison. In Ohio minors, employed contrary to the child-labor laws, may not be deemed guilty of contributory negligence, nor to have assumed any risk.

**CORPORATION PLANS OF COMPENSATION.** In April the United States Steel Corporation announced the introduction of its own system of voluntary compensation for injured workmen. Negligence of workers is not taken into account; but intoxication bars compensation. By this plan unmarried men temporarily disabled receive thirty-five per cent. of their wages and married men temporarily disabled fifty per cent., with an additional five per cent. for every child under sixteen years and two per cent. for every year of service above five years. For permanent injuries some compensations are given, depending on the extent to which employment is interfered with and on the annual earnings of the injured man. Widows and children of men who are killed will receive one and one-half years' wages, and an additional ten per cent. for each child under sixteen, and three per cent. for every year of service above five years. This scheme applies to more than 200,000 workmen; and was considered wise from both a humanitarian and a business point of view; but there was doubt as to the sufficiency of the compensation provided, especially for single men and aliens whose families were still abroad. The corporation has made systematic efforts to diminish accidents. At about the same time the International Harvester Company announced a similar plan. As in the above scheme workers may accept the plan and give up their right to sue or may not accept and retain this right. Compensation equals three years' wages, not less than \$1500 nor more than \$4000, in case of death; for the loss of one hand or foot, one and one-half years' wages, not less than \$500 nor more than \$2000; for the loss of both hands or feet, or one hand and one foot, four years' wages, not less than \$2000; permanent disability secures a pension; and minor injuries secure one-fourth to one-half wages, depending on whether disability lasts less or more than thirty days. The plan also provides that a workman may contribute from six to ten cents a month and have his compensation increased.

**PENSIONS FOR SURVIVING RELATIVES.** The newer view is that there can be no compensation for an accident resulting in the death of the bread winner of a family; and that, therefore, whatever payment is made should be looked upon as relief from possible poverty and distress. Along with this goes the conviction that less distress is occasioned in the long run among the

widows and children of killed workmen if this relief is given in the form of annual pensions instead of in a lump sum, as heretofore has been the rule. Thus the British Royal Commission on the Poor Laws and the Relief of Distress, after most extensive inquiry, declared that "no commutation of weekly compensation payments should be permitted and no lump sums paid in respect of fatal accidents . . . and that such sums should in all cases be invested in trust for the maintenance of those from whom the accident has withdrawn the means of support." This principle has been adopted by the committees having in charge the distribution of relief for those suffering from the Monongah, the Darr, and the Cherry mine disasters of 1907-9. These committees had together about a half million dollars, to which should be added one hundred thousand dollars disbursed by the State of Illinois for relief at Cherry. The Cherry Commission divided its beneficiaries into two classes: the first included widows residing in the United States whose children were all under fourteen years; the second all others. A widow with one child receives twenty dollars a month until the child is fourteen; five dollars is added to the pension of each widow for every additional child. These payments are continued until two, or sometimes three, of the children are fourteen years of age. Payments to the second class are made in lump sums. See OCCUPATIONAL DISEASES.

**EMPLOYMENT.** See UNEMPLOYMENT.

**ENDOWMENT.** See UNIVERSITIES AND COLLEGES.

**ENGINEERING.** The topics in the various branches of Engineering are treated in the present work under their respective titles. Thus subjects in Civil Engineering will be found under such titles as BRIDGES, CANALS, CONCRETE, DAMS, FOUNDATIONS, RAILWAYS, TUNNELS, etc.; in Sanitary Engineering under GARBAGE DISPOSAL, SEWAGE PURIFICATION, STREET CLEANING, SANITATION, WATER PURIFICATION, WATER WORKS; in Electrical Engineering, under ELECTRIC LIGHTING, TRANSMISSION OF POWER, ELECTRIC RAILWAYS, DYNAMO-ELECTRIC MACHINERY, WIRELESS TELEGRAPHY, WIRELESS TELEPHONY, etc.; in Chemical Engineering, under COPPER, IRON AND STEEL, the articles on metals and minerals, AGRICULTURE, AGRICULTURAL EXPERIMENT STATIONS, CHEMISTRY, INDUSTRIAL, etc.; in Mechanical Engineering, under AERONAUTICS, AUTOMOBILES, BOILERS, INTERNAL COMBUSTION ENGINES, etc.; in Marine Engineering, under SHIPBUILDING, NAVAL PROGRESS, BATTLESHIPS, etc. See also the articles on the various industries and minerals, PAVEMENTS AND ROADS, MUNICIPAL GOVERNMENT, IRRIGATION, DRAINAGE, etc.

**ENGINEERING EDUCATION.** See UNIVERSITIES AND COLLEGES.

**ENGINES.** See INTERNAL COMBUSTION ENGINES.

**ENGINES, FIRE.** See FIRE PROTECTION.

**ENGLAND, CHURCH OF.** A religious denomination which is the "Established Church of England" and the dominant religious body of that country. The title must not be confused with the Anglican Church, which includes that group of dominant churches which are in communication with or have sprung from the Mother Church of England. These churches are the following: Church of Ireland, Episcopal Church of Scotland, the Protestant Episcopal Church of the United States of America, the Church of

Canada, the Church of Australia, the Indian Church, and the Church of South Africa. These churches are all independent in their jurisdiction and are not amenable to the ecclesiastical courts of that church.

No census of the church membership of the Church of England has been made in recent years. The number of communicants is estimated at approximately 2,500,000, while the church sittings number about 6,000,000. The number of the clergy in England and Wales is about 23,000, of whom 14,750 are beneficed, and 7770 are assistant curates. The total amount contributed in voluntary offerings to the Church of England for the year 1909 was £8,060,289. The revenues from church property amounted to £5,753,557. At the head of the Church of England are 37 bishops, of whom two, Canterbury and York, are archbishops. The bishops superintend the work of each diocese and are aided by the suffragan or assistant bishops, of whom there were 37 in 1910. The bishops are appointed by the King and have a seat in the House of Lords.

Of great interest in the history of the church in recent years has been the Brotherhood movement, which has grown rapidly. It is a development of the Pleasant Sabbath Afternoon Association, which was an attempt to attract men who did not attend the ordinary Sunday service. The Brotherhood movement binds together the members of the society into a union, which manages its own affairs and selects its own officers and speakers.

The problem of increase of candidates for the ministry has proved serious in the Church of England in recent years. The church makes no financial provisions for the training of the ministry and the old universities are no longer sending the majority of their students into the ministry of the national church, while the new universities fail to supply the deficit. The announcement by the bishops that after 1917 they would ordain no candidate who was without a degree has proved a premature decision and it is to be reconsidered. It is becoming evident that the church will need to provide for the free education of candidates for the ministry whose only bar is poverty.

After a period of freedom from ritual troubles, there was an outbreak at Brighton during the year. The Bishop of Chichester had sent out a pastoral letter to the clergy of his diocese, based on their replies to his visitation questions. The Bishop objected to certain practices which he regarded as unlawful, and in particular he ordered that the Sacrament should not be reserved except for its primitive and catholic use, namely, for the sick and dying, and that it should not be used at any public service, such as exposition and benediction. The vicars of four Brighton churches could not adopt the Bishop's views and two of them resigned their benefices.

**ENGLISH ARCHITECTURE.** See ARCHITECTURE.

**ENGLISH MUSIC.** See MUSIC.

**ENOCK, C. R.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**ENROLLMENTS, SCHOOL.** See EDUCATION IN THE UNITED STATES, and under different States and countries.

**ENTERIC FEVER.** See TYPHOID FEVER.

**ENTOMOLOGY.** As compared with other countries, economic entomology receives in the United States an unusual amount of attention,

research on local entomological problems being an important part of the work of every Agricultural Experiment Station (q. v.), and publications of these stations should be consulted by all who are interested in these local problems.

**INTRODUCTION OF FOREIGN PARASITES.** The most important single investigation is the joint work of Federal and State entomologists on the control of gypsy and brown tail moths in eastern New England. As was stated in earlier **YEAR BOOKS**, parasites of these forms have been imported from Japan and eastern Asia, and results thus far obtained give reason for believing that these may eventually aid in controlling the pests, though not enough time has yet elapsed for any very conclusive statements to be made. Rogers and Burgess published in August, as a Bulletin of the Bureau of Entomology, U. S. Department of Agriculture, a summary of the results thus far obtained. The report itself should be consulted for details. The authors evidently regard improvements in methods of spraying as the line along which the best immediate results will be obtained. While theoretically important, the introduction of foreign parasites is necessarily a slow process, and it will probably be several years before any sort of control can be got in that way. The territory now covered by these insects covers approximately 7900 square miles, about three-quarters of which is wooded and therefore difficult to treat. Owners of land in the infested area are advised that proper care of apple trees will keep them free from the pests, and that if woods are cleared of brush, or cut, and the ground replanted with ash, hickory, or conifers, which are not so liable to attack from the insects, some loss may be saved.

**SPREAD OF THE MOTH PEST.** New light was thrown on possible means of transportation of gypsy moth eggs by feeding them to English sparrows in captivity. Forty per cent. of the eggs passed the intestines of the birds unchanged, and of these five per cent. subsequently hatched. While these experiments were on birds in captivity, where conditions are abnormal, the digestive processes being noticeably less vigorous than when the birds are free, it is probable that this might occur under the latter conditions, and thus the eggs be scattered. A gypsy moth colony was reported from Wallingford, Conn., a locality previously free from them. It was also discovered in 1910 that quantities of the brown tail pests were being imported on nursery stock from France. Prompt action on the part of entomologists of several States had, it was believed, prevented the colonization of any of these, but it is important to guard against this method of infection, especially in stock from France, where inspection measures are very inadequate.

**THE BOLL WEEVIL.** In the southern United States successful treatment of the cotton boll weevil with arsenate of lead was reported. The spread of this weevil has led farmers of infested sections to abandon cotton raising, and to plant corn instead. This seemed at first to be extremely profitable, but the corn was reported in 1910 as liable to attacks of other weevils, against which no very adequate protection had been discovered.

**SUPERPARASITISM.** One difficulty in the application of the treatment of injurious insects by parasites has been indicated by Fiske, who shows that a parasitic insect shows very little

ability to judge of the suitability of the host for its eggs and often lays eggs on a host which is already parasitized by other insects. In this case, either one form dies and the other lives, both die, or what very rarely happens, both live and develop. This superparasitism is very common, and is an important complication to be considered in connection with the control of such forms as the gypsy moth by parasites.

**BLACK FLIES.** In mountain regions, the "black flies" which breed in the beds of mountain brooks are often a very serious annoyance to the inhabitants, since from their small size it is impossible to screen them from houses without making the screens so tight as practically to shut off ventilation. Sanderson stated that it is possible to kill the larvæ of the most annoying of these insects, *Simulium hirtipes*, by spraying the surface of the water of the brook with phenol oil. Care has to be taken not to make the solution so strong as to injure the fish.

**TYPHOID FLY.** Felt published results of experiments on the question as to whether the common or "typhoid" fly will breed freely in dark places, and concluded that they will not go into dark places to lay their eggs. These conclusions, if true, maybe of value in handling the fly nuisance, as it is evidently easier to make manure pits, etc., dark than to effectively tighten them against the entrance of insects.

**LOCUST PROBLEM.** In South Africa the locust problem has been a serious one, the damage done in 1906 having been estimated at £1,000,000. The most destructive species is the brown locust (*Pachytylus subcollis*). It was reported in 1910 that good results had been obtained by spraying the veldt in front of an advancing swarm with a mixture of treacle and arsenate of lead. The insects were very fond of the treacle and died in large numbers in consequence of eating the mixture. It often happened that a second swarm, immediately following the first, would eat these dead insects and be poisoned by the arsenate of lead contained in their bodies.

**INSECTS AND PROPAGATION OF DISEASE.** The question of the relation of insects to the transmission of diseases through the carrying of trypanosomes received a great deal of attention during the year. See **INSECTS AND THE PROPAGATION OF DISEASES; SLEEPING SICKNESS; PELLAGRA.**

**STUDIES OF THE HONEY BEE.** Lovell stated that experiments on the color discrimination shown by honey bees showed that they can discriminate between different colors, but that if there is any advantage in doing so, they will learn not to discriminate. Snodgrass, in a paper from the Bureau of Entomology of the U. S. Department of Agriculture, has published an elaborate description of the anatomy of the honey bee, intended to be a final authority on this subject, and to correct errors made by previous describers.

**ENTWISTLE, JAMES.** A rear-admiral (retired) of the United States Navy, died March 23, 1910. He was born in Paterson, N. J., in 1837 and was educated in the public schools of that city. He enlisted in the 8th Regiment of the New York State militia in 1861 and took part in all subsequent battles of that regiment, including the first battle of Bull Run, until he was discharged at the expiration of his enlist-

ment. He then passed the examination and was appointed to the engineer corps of the navy as third assistant engineer and was detailed for duty on the gunboat *Aroostook*. During the greater part of the war he served under Admiral Farragut. In January, 1897, he was ordered to duty on Admiral Dewey's flagship, *Olympia*, and took part in the battle of Manila Bay. He was heartily commended by Admiral Dewey and received the Dewey medal. He was also recommended for advancement in numbers for eminent and conspicuous services in this battle, and was placed on the retired list with the rank of rear admiral in July, 1899.

**EPIGRAPHY.** See PHILOLOGY, CLASSICAL.

**EPILEPSY.** To an already long list of drugs used for epilepsy, the venom of the rattlesnake (crotalin) was added by Spangler of Philadelphia, who gave it in eleven cases of the disease, following the observation that a man had been cured of epilepsy by the bite of a rattlesnake. The dry glycerized venom was given in injection in minute doses, which were gradually increased. A profound impression is made on the nervous system. Cures were made lasting three months and a year, and a general lessening of severity and frequency of attacks was the rule. Crotalin was used empirically and its author has no theory as to its *modus operandi*. Ehrlich's "606" (see ARSENO-BENZOL) was also used with success in Germany in cases of epilepsy in which a syphilitic etiology existed.

The 16th annual report of the Craig Colony for Epileptics at Sonoma, N. Y., calls attention to the frequency of accidental death during epileptic seizures, and the necessity of keeping epileptics under close observation at all times. The high death rate (582 deaths in 2732 patients in sixteen years) is shown not to be due to the disease itself, but rather to various accidents, more than one-sixth of the deaths occurring in this way. The epileptic may injure himself fatally by violent falls, by drowning in the bath, or by suffocating himself in soft pillows, while unconscious. An International Association for the systematic study and treatment of epilepsy was organized in Budapest in 1909 and held its first meeting in Berlin in October, 1910. The transactions will appear in the journal *Epilepsia*.

**EPISCOPAL CHURCH.** See PROTESTANT EPISCOPAL CHURCH AND ENGLAND, CHURCH OF.

**EPISCOPAL CHURCH, REFORMED.** See REFORMED EPISCOPAL CHURCH.

**EPISTEMOLOGY.** See PHILOSOPHY.

**EPWORTH LEAGUE.** An organization of the young people of the Methodist Episcopal Church, founded in 1892. It is the largest society of young people in the world, and in 1910 it had a membership of about 80,000. During the year an advance was made in taking up work in foreign lands. Assistant secretaries were appointed for the mission fields of Mexico and southern Asia, and money was provided for the office and personal expenses of the secretaries, for the translation of literature for use in the work of the league and for systematic Christian instruction among the young people of the Spanish missions, and in several of the principal languages of India. The general secretary is Rev. Edwin M. Randall, M. D.

**EQUIPMENT, ARMY.** See MILITARY PROGRESS.

**ERBIUM.** See ATOMIC WEIGHTS.

**ERDMAN ACT.** See ARBITRATION, INTERNATIONAL.

**ERIE RAILWAY BRIDGE.** See BRIDGES.

**ERITREA.** An Italian colony on the African coast of the Red Sea. Area (estimate), 73,700 square miles. Population (largely nomadic), estimated at 450,000. Including the military there are 4607 Europeans (Italians, 3049). Capital, Asmara; chief port, Massawah (2275 inhabitants). Various animals (camels, cattle, sheep, and goats) are raised by the wandering tribes, and, with their products, are the main articles of local trade. The pearl fisheries yield annually 250,000 lire in pearls and 800,000 lire in mother-of-pearl. Gold mines are worked near Asmara. Imports and exports (1907), 10,605,877 and 2,188,205 lire respectively. Estimated revenue for 1908-10, 8,470,860 lire (colonial revenue, 2,623,000; State subvention, 5,847,960); expenditure, 8,470,960 (military, 4,443,200; civil administration, 4,027,760). Governor in 1910, Marquis Giuseppe Salvago Raggi. The Dahlak Archipelago (an important pearl fishery) is attached to Eritrea.

**ESPERANTO.** See LANGUAGE, INTERNATIONAL.

**ETHICAL CULTURE, SOCIETIES FOR.** The parent society was established in New York in 1875 by Felix Adler. Others sprang up later in Philadelphia, Chicago, St. Louis, Brooklyn, and elsewhere. The object of the society was to unite people of varying religious beliefs or none, in the ordinary acceptance of the term, upon the basis of devotion to the moral ideal. Interpreting the word "religion" to mean fervent devotion to the highest moral ends, the society is to be regarded distinctly as a religious body. But toward religion as a confession of faith in things superhuman, the attitude of the society is neutral. Neither acceptance nor denial of any theological doctrine disqualifies for membership. A recognition of the supremacy of the moral ideal and of the independence and sovereignty of the ethical factor in life is alone insisted upon as a basis of membership. The New York society is engaged in various forms of educational and philanthropic activity. Education has, from the first, been its chief care. Early in its history it established one of the first free kindergartens, and that has grown to the dimensions of the present Ethical Culture School. The membership of the New York society is about a thousand. The other societies are smaller, but are, most of them, engaged in educational and philanthropic work along the lines of the New York society. These societies are federated in the American Ethical Union, which conducts the *International Journal of Ethics* and a summer school of ethics, besides attending to the publication of the literature of the movement. This union is in turn related to the International Ethical Union, which, at a congress at Eisenbach, Germany, in 1906, adopted as its basis this declaration: "The general aim of the union is to assert the supreme importance of the ethical factor in all the relations of life, personal, social, national, and international, apart from all theological and metaphysical considerations." The societies for ethical culture hold regular Sunday meetings, Sunday schools, and various classes. Among the organizations of the parent society in New York are the Women's Conference, the Young Women's

Union, the Young Men's Union, the Hudson Guild, and the Down-Town Ethical Society. A new meeting house for the society, adjoining the School, Central Park West and 64th Street, has just been completed and dedicated. The officers in 1910 were: Felix Adler, leader; John Lovejoy Elliott, Percival Chubb, David Saville Muzzey, Henry Moskowitz, and Alfred W. Martin, associate leaders.

**ETHICS.** See PHILOSOPHY.

**ETHNOLOGY.** See ANTHROPOLOGY.

**EUGENICS.** See BIOLOGY, *Genetics*.

**EUROPIUM.** See ATOMIC WEIGHTS.

**EVANGELICAL ALLIANCE OF THE UNITED STATES.** A religious organization founded in 1867, with the object of manifesting and strengthening Christian unity, defending and promoting Christian liberty and to encourage coöperation in Christian work without interfering with the internal affairs of the denomination. The Alliance, in concert with the British Alliance, has defended and promoted religious liberty in countries where religious persecution was severe and persistent, and has prompted the observance of an annual week of prayer in all Christian lands and in all mission fields during the week beginning with the first Sunday of the year. The alliance is undenominational and all the evangelical bodies are represented in its board of directors. The activity of the alliance during 1910 was chiefly in preparing and publishing the Programme for the Week of United and Universal Prayer and sending it to 20,000 churches. The President of the Alliance is Dr. Leander T. Chamberlain, 222 West 23rd Street, New York.

**EVANGELICAL ASSOCIATION.** A religious denomination founded in 1800 by Jacob Albright. It was begun as a movement in the Methodist Episcopal Church to carry on work, especially among Germans. The Methodist Church did not care to labor in this field and Albright therefore devoted himself to those speaking the German language. It was not his original purpose to found a new church, but the movement grew to such proportions that it finally separated from the Methodist body, although there was no schism or sharp break. The doctrine of the denomination corresponds very closely to that of the Methodist Episcopal Church. According to the United States census of religious bodies made in 1906 and published in 1910, the total number of communicants in the former year was 104,898, with 1617 church edifices and 942 ministers. There were in addition 369 local preachers. According to statistics gathered by Dr. H. K. Carroll and published in 1910, there were in that year 106,957 communicants, with 1687 churches and 991 ministers. The denomination carries on mission work in Japan, China, Switzerland, and Canada. The most distinctively foreign mission work is that in China and Japan. The educational work of the denomination in the United States includes three institutions of higher grade, and two parochial or mission schools. The institutional or philanthropic enterprises of the church include an orphanage, a home for the aged, and a deaconesses' home and hospital. The church also maintains a publishing house at Cleveland, O. An important organization included with it is the Young People's Alliance, which had a membership of over 30,000 in the United States. The official organ is the *Evangelical Messenger*. Its other publications

are in English and German. The church has three bishops.

**EVANS, DUDLEY.** President of the Wells Fargo Express Company, died March 27, 1910. He was born in Morgantown, W. Va., in 1833 and graduated from Washington College in 1859. After his graduation he taught school until the outbreak of the Civil War. He then returned to Virginia and enlisted in the first Virginia infantry. He served with credit throughout the war and became colonel of the 20th Virginia cavalry. He was captured by the Federal forces near the close of the war and spent a long term in the military prison. After the close of the war he went to California and became connected with the Wells Fargo Express Company. He was successively manager, vice-president, and president of the company, having been elected to the latter office in 1901. He was twice appointed a member of the board of visitors at the United States Military Academy at West Point.

**EVERETT, WILLIAM.** An American educator and author died February 16, 1910. He was born at Watertown, Mass., in 1839, and was the son of Edward Everett. He graduated from Harvard College in 1859 and from Trinity College, Cambridge, in 1863. From 1870 to 1877 he was assistant professor of Latin at Harvard College and from 1878 to 1893 was master of the Adams Academy at Quincy, Massachusetts. In 1893-95 he served in Congress as a Democratic member from Massachusetts. He was an active civil service and tariff reformer. In 1897 he again became master of Adams Academy. Mr. Everett was one of the best known educators in the United States and had also a wide influence as a writer and speaker on economic and literary subjects. Among his published works are: *Changing Base* (1868); *Hesione, or Europe Unchanged*, a poem (1869); *Double Play* (1870); and *Italian Poets since Dante* (1904).

**EVOLUTION.** See BIOLOGY.

**EVOLUTION, EXPERIMENTAL.** See CARNEGIE INSTITUTION OF WASHINGTON.

**EXCAVATIONS.** See ARCHÆOLOGY.

**EXO GAMY.** See ANTHROPOLOGY AND ETHNOLOGY.

**EXPENDITURES, GOVERNMENT.** See UNITED STATES and under different countries.

**EXPERIMENT STATIONS.** See AGRICULTURAL EXPERIMENT STATIONS.

**EXPLORATION.** DETAILED SURVEYS IN AFRICA. Detailed exploration in Africa has made wonderful progress, but its completion will still require decades. Hundreds of official or independent observers are obtaining a good working knowledge of large districts, some of which comprise whole colonies or protectorates, as Togo, Sierra Leone and French West Africa. But in each of these districts there may be large areas of forests, for example, that have not yet been explored. Boundary and other official survey parties are still collecting a large amount of geographical data. Some of them, as in the French surveys, are especially instructed to collect all the facts they can gather relating to the various phases of geography and other earth sciences. These studies are appearing in various official reports and monographs, which embody the essence of what has been learned in one or another field of study. As an example, Franz Thonner, the Austrian botanist, has just published a work of 673 pp., and 150 plates,

briefly describing practically all the flowering plants of Africa and its islands.

There is now little opportunity for exploration on a large scale excepting in the Sahara, where the French are extending their investigations. The recent punitive expedition, sent by the French across the large district Mauritania in the southwestern part of the Sahara, enriched geography by a good map of that practically unknown region. The results of extended geographical work are very conspicuous in the map product of the colonial governments. The Germans have completed their fine ten-sheet map of the Togo colony, on a scale of 3.1 statute miles to an inch, which has been in preparation for ten years, and is one of the best maps ever made of a new region. The large scale maps of German East and Southwest Africa, now considerably advanced, are also among the best products of the kind and give an accurate and detailed idea of the regions they represent.

Detailed surveys in most of the colonies are rendering useless the maps of ten years ago. The German Colonial Atlas, printed in 1897, is out of date and is being reproduced to include the enormous amount of new data. The colored map sheets which the French Colonial Office is issuing of its colonies are among the best maps of recently explored parts of the world. All the colonial governments, excepting Portugal and Spain, are engaged in this great work of producing good maps of Africa. The result is that it is now possible to produce good economic maps showing climatic and topographic variations, the distribution of great forests, swamps, plains, highlands, mineral and other export products, the extent of navigation, etc.

From 100 to 150 new map sheets are issued every year and they set forth the great progress in our knowledge of Africa. The colonial boundary surveys are now nearly completed. They are of great advantage in general map making, because many astronomical positions have been fixed along these frontier lines; and as other surveys have been tied to them, a satisfactory degree of accuracy is obtained in general map work.

Railroad development is now an important influence in adding to our knowledge of Africa. Only a few of these enterprises can be mentioned here. The Cape to Cairo line will be about 6870 miles long, and about four-fifths of the distance is now covered by rail, river and lake steam routes. The Belgian Railroad Company of the Great Lakes has completed its rail routes around the series of rapids in the upper Congo, so that there is uninterrupted steam transportation by water or land for about 2250 miles from the mouth of the river to Kalengwe Falls, the extreme limit of navigation. By the completion of the railroad between Port Herold and Blantyre, the capital of the Nyasaland Protectorate has uninterrupted steam communication with ocean vessels at Chinde in the Zambezi Delta. The upper and middle Niger are now connected with the Atlantic Ocean by one British and two French railroads. The British line from the port of Lagos is in operation to Jebba on the Niger; and while the Niger is being bridged at this point, the construction of the line east of the river is being rapidly extended towards Kano, the leading commercial centre of the Central Sudan.

A large part of the study now given to

Africa relates to the discovery of its resources and the best methods for their development. Several areas under the tropical sun have been discovered which stand so high above the sea that temperate influences prevail. White immigration is invited to these regions under restrictions which limit settlement to those who are fitted for pioneer work. These lands include a large area in British East Africa, where the elevation at Nairobi is 5450 feet above the sea, in the Kikuya country up to 6500 feet, and west of the Mau Escarpment from 6000 to nearly 8000 feet. White settlers on these high plateaus have already taken up over 1,000,000 acres, most of it in large ranches. A considerable number of German peasants and Boers are settled in the neighborhood of Mounts Kilimanjaro and Meru. The Germans also have a fine reserve for future European settlement in Ruanda, in the northwestern corner of the colony, not yet opened to immigration because government is not yet organized there. Belgian farmers, accepted by the state, are moving upon the high plateau of Katanga, in the southeast corner of the Belgian Congo, where, it is said that about 40,000,000 acres are available for white occupancy. Only picked families are desired for these pioneer farming enterprises. The immigrants must have some capital and not a little hardship must be endured in the effort to make new homes in these African wildernesses.

Within the past year the experts who have been studying the question of cotton raising in Northern Nigeria have reported that districts about five-sixths as large as our own cotton area are well adapted to produce the qualities and fiber required by the English spinning mills. Rhodesia, Nyassaland, British East Africa, Uganda, German East Africa and the Togo colony are now exporting considerable quantities of cotton of good quality. German East Africa is raising a large amount of sisal hemp, and planters are discussing the question of finding a market in the United States in competition with the henequin imported from Yucatan. Indian corn is a growing export, both from West Africa and British East Africa; the island of São Thomé and the colonies on the Gulf of Guinea are among the largest producers of cacao in the world; and rubber is just beginning to be raised in plantations, insuring the permanence of the industry. The discovery that most European vegetables can be raised successfully in the larger part of Tropical Africa is a great boon to the whites living in those regions. On the whole there is a large supply of native labor for the manifold enterprises which the colonial powers and private interests are carrying on. In some regions, however, there is said to be scarcity of labor owing to the fact that European enterprises have increased more rapidly than the native labor supply. This is especially the case in German East Africa.

Col. Theodore Roosevelt's hunting expedition, which returned from British East Africa in 1910, brought to the United States National Museum about 11,000 specimens of African fauna and a considerable variety of flora.

All the leading colonial governments have experienced observers in the colonies who are spending years in the study of resources, climate and every influence that can affect colonial development. Conspicuous in this work is

August Chevalier, who has been engaged for several years in French West Africa, and reports, from time to time, on all phases of the large areas he examines, including locations at high altitudes which he believes will be useful as sanitariums for invalided white men.

Dr. Karl Kumm, a geographer and for some time a missionary in the Sudan, has crossed Africa from the mouth of the Niger to that of the Nile. In Wadai he determined the water parting between the Nile, Congo and Shari Rivers. South of the great northern bend of the Niger, Dr. Leo Frobenius, noted for the important ethnological results of his studies in the Congo Basin, is making archaeological researches with important results.

The name of the lake west of Victoria Nyanza, called Lake Albert Edward by Stanley, has been changed to Lake Edward, to prevent confusing it with Lake Albert, to which it is joined by the Semliki River.

**ASIA.** The Chinese government is beginning to issue sheets of the topographic surveys now in progress by the land survey bureaus at Peking and Nanking. The government is not yet selling these map sheets to the public, but a number of them have reached Europe. The surveys, conducted by trained natives, are being made on a large scale. No color but black is used and many symbols are employed for a large variety of information. All the names and explanatory texts are in Chinese characters, though Arabic figures are used for heights. China has never before presented so much detail on her maps and so accurately shown it. It is hoped ultimately to cover China proper with these surveys.

The first railroad to be built by Chinese engineers with Chinese money has been opened between Peking and Kalgan, a large city and the most important trading point northwest of Peking, along the edge of the Mongolian plain. The line is to be extended west from Kalgan along the southern edge of the Mongolian plateau, to Hokau, on the great northern bend of the Hoang River. The railroad passes through a very fertile and populous country.

The Russians have in progress surveys of the northern coast of Siberia, which when completed will give an exact idea of the outline of the entire Arctic coast of Asia. The results of the work for 1910 are not yet reported, but it is learned that the survey has been completed between the Lena and Kolyma Rivers and that it is far advanced between the Kolyma and Bering Strait. Many new indentations have been discovered and new proofs found of the shallow depths of the Arctic Ocean along this coast.

The government of India in 1901 gave its formal sanction to a scheme for a systematic and detailed ethnographic survey of the whole of India. The work is now in progress in each presidency or province and has been completed in the Madras Presidency, where the manners, customs and physical characters of more than 300 castes and tribes representing more than 40,000,000 people have been recorded in seven large volumes. Similar reports will come from all other parts of India and the whole will form a remarkable contribution to our knowledge of Indian peoples.

Arabia is now the largest unexplored land area of the world. Capt. F. Fraser Hunter of the Survey of India has now compiled a map

of the peninsula on a scale of 32 miles to an inch, which is the result of some years of diligent research and is now under publication by the Indian government. It is the only map of Arabia yet compiled on so large a scale and it sheds light on hitherto obscure points in the geography of that region. One of the interesting features is that the notes of some of the old explorers have been recompiled, their astronomical observations worked out and corrected and their barometric readings reduced to correct value, so that the sheets give a more accurate idea of those parts of Arabia traversed by explorers than any earlier map. The largeness of its scale emphasizes the fact that an immense stretch of the unknown still lies in Arabia.

**AUSTRALASIA.** A commission has completed a detailed survey of the proposed railroad to connect Port Augusta, South Australia, with Coolgardie, Western Australia, and thus complete the east-west transcontinental line. The distance to be covered is 1063 miles. The schema is declared to be a sound, financial project, and the building of the road is not likely to be delayed. It will bring the eastern states of the Commonwealth two or three days nearer to London.

The German-Dutch boundary parties in New Guinea, who have been surveying the boundary between their possessions along the 141st meridian, were prevented by hostile natives from crossing the island from the north. They therefore ascended the Kaiserin Augusta River to strike the boundary line further south than it had been possible to advance by the direct route. By means of a Dutch gunboat, a river steamer and smaller craft they made a most successful ascent, reaching the 141st meridian some sixty miles north of the British frontier and then continued their survey to the southern end of the boundary. This ascent of the Kaiserin Augusta River marks an important advance into the hitherto unknown interior of New Guinea.

An expedition was undertaken in 1907-08, by the Danish explorer, Frits v. Holm, to Sianfu, capital of Shensi province, China, in order to try to obtain the Nestorian Monument (Chinese: Chingchiaopei) for civilization. Results of the exploration were published in 1910.

The Nestorian Tablet was erected in 781 by Syrian missionaries, and their Chinese converts, after the successful introduction of Christian Nestorianism into the Celestial Empire by Olupun, who arrived in Sianfu in 635. It is likely, however, that the Nestorian missionaries started work in China a century earlier.

The marvelous preservation of the inscription in Chinese and Syriac proves that it was buried for centuries before, it was accidentally excavated by laborers in 1625. In 1628 the Portuguese Jesuit Smedo visited the monument and brought to Europe prints of the inscription, which counts over 2000 Chinese characters, besides the Syriac writing.

The Dutch scholar Kircher was the first to publish a translation; but the best translation was made last century by the American missionary Dr. A. Wylie.

Mr. Holm set out from Tienstin in May, 1907, and arrived in due course in Sianfu, where he made a secret contract with stone-cutters for the execution of a perfect monolith replica of the original monument. After great difficulties

the replica was transported 356 miles eastward to Chengchow railroad station on a special cart, the transportation taking three months. The replica, from which plaster casts may now be taken, is temporarily exhibited in the Metropolitan Museum of Art, New York.

On Oct. 2, 1907, the original tablet was removed to Sianfu proper, into the Peilin ("Forest of Tables"), by the Sianfu mandarins.

**AMERICA.** The vast expansion of grain raising in the prairie lands of Canada has induced the Dominion government to issue a map in three sheets, showing the acreage in wheat, oats, barley and flax, in each township of Manitoba, Saskatchewan, and Alberta, in 1909. The map for 1910 will soon be issued, and new editions will be published every year.

The Transandean railroad, opened for traffic between Buenos Ayres and Valparaiso on May 25, 1910, follows the very route across the Andes that every traveler has trodden for generations, though six other surveys were made to find, if possible, a better way across the mountains. The saving in distance between the two capitals, as compared with the sea route around Cape Horn, is 2700 miles. The influence of the road will be far-reaching. It is already stimulating the completion of Chile's great meridional line, between Puerto Montt and Pisagua, 1550 miles, which, it is expected, will be completed by 1914. Meanwhile the railroad from Arica, over the Andes to La Paz, Bolivia, is rapidly building and upon the completion of these two enterprises there will be rail connections via Santiago all the way between the Peruvian ports, the mining centres of southern Peru and La Paz, across the continent to Buenos Ayres.

Geographers have long known of Dr. Wilhelm Sievers' investigations of the geography and glaciation of the northern Cordillera of South America. He returned to Ecuador to renew his work in November, 1909, and has spent six months among the mountains of that country and Peru, collecting a large amount of new material and considerable of it in virgin territory. Among his geographical discoveries is the fact that the ultimate source of the Marañon-Amazon is to be found on the snow mountain San Lorenzo, about 10° 25' S.; 36° 37' W.

**EXPORTS AND IMPORTS.** See UNITED STATES and under different countries.

**EXPOSITIONS.** Since 1906 there have been held in the United States two important expositions, one at Jamestown, Va., in 1907, and one at Seattle, Wash., known as the Alaska-Yukon-Pacific Exposition, in 1909. Of comparatively minor importance, however, were the two expositions held in the United States during 1910. The first of these was the Ohio Valley Exposition, held in Cincinnati, Ohio, from August 29 to September 24; and the other, the Appalachian Exposition, held in Knoxville, Tenn., from September 12 to October 12. The exploitation and development of the resources of the territories indicated by their names were the chief object of these expositions, although the topic of waterway improvement was considered at the former, and the protection of forests and watersheds at the latter.

During the year the celebration of the completion of the Panama Canal by an exposition to be held in 1915, and the claims of New Orleans, La., and San Francisco, Cal., as desirable places, were agitated. In New Orleans, on

April 6, 1910, a World's Panama Exposition was organized, and a bond issue of \$6,500,000 authorized by the State, which amount, together with bonds issued by New Orleans and popular subscription, makes available a capital of \$10,000,000. Equally persistent efforts were made in the West to secure the exposition for San Francisco, and a fund of \$17,500,000 was raised by a State bond issue of \$5,000,000, a pledge of an equal amount by the city of San Francisco, and a popular subscription of \$7,500,000. An organization was effected in San Francisco with the name of the Panama-Pacific International Exposition. The citizens of San Diego, Cal., organized a Panama California Exposition to be held in that city in 1915, and upwards of \$2,000,000 was pledged for that purpose. The press of the city of Washington presented the claims of the capital city for the celebration of the completion of the canal, and this proposition received the unofficial endorsement of Baltimore.

An organization to celebrate in 1913 the one hundredth anniversary of Commodore Perry's victory on Lake Erie was formed. Commissioners from Pennsylvania, Michigan, Illinois, and Wisconsin were authorized by the legislatures of those States, and in addition to an exposition to be held at Put-in-Bay from July 4 to September 10, 1913, a national memorial is proposed for Commodore Perry and those American seamen who perished in the battle, the remains of whom still lie in unmarked graves on Put-in-Bay Island.

**BRUSSELS EXPOSITION.** The most important exposition of the year was the Brussels Universal and International Exposition, which was held from April to November. A site covering more than 200 acres was selected on the west side of Brussels not far from the Bois de la Cambre, near the new quarter of the Avenue Louise where the picturesque palaces for the installation of the exhibitions were grouped. As is usual many of the buildings were copies of historic structures; thus the official pavilion of Antwerp was the house of Rubens; Ghent revived its ancient Guild Hall of the fourteenth century; while the Spanish pavilion was a representation of the Alhambra palace at Grenada with its famous Court of Lions. The exhibition was planned to display exhibits broadly included in artistic, scientific, industrial, commercial, and colonial sections. These were classified in 21 groups including 128 classes, and an additional group devoted to Congresses and Conferences. The Exposition was formally opened by King Albert on April 23, and continued until November 14. A severe fire on August 14 destroyed the entire Belgian and British sections, including many exhibits that can never be replaced. There were 107 exhibitors attributed to the United States, and among these the Jury of Awards granted 18 grand prizes, 4 diplomas of honor, 36 gold, 33 silver, and 4 bronze medals and 4 honorable mentions.

**ARGENTINA.** The one hundredth anniversary of the independence of Argentina was celebrated with a series of five expositions held in Buenos Ayres, and devoted respectively to Agriculture, Art, Hygiene, Industry and Transportation. Of these the ones on Industry and Transportation presented exhibits that served to illustrate the progress made during the century in Argentina. The Art exhibition showed the best works produced by Latin countries, while the exhibits

devoted to Agriculture were international in character, coming from various countries, including the United States, from where an official exhibit was sent. These expositions were opened in May and continued until November. The Infanta Isabel from Spain and President Montt from Chile, as well as special ambassadors from several countries, participated in the ceremonies that occurred on May 25, the actual anniversary of the independence. Also several international congresses convened in Buenos Ayres during this period.

**ITALY.** The fiftieth anniversary of the proclamation of the Kingdom of Italy will be celebrated during 1911 by two international expositions: one in Rome to be devoted to History, Archaeology, and Art, to be held from February to October, and one in Turin to be devoted to Industry and Labor, to be held from April to November.

**EXPRESSMEN'S STRIKE.** See **STRIKES AND LOCKOUTS.**

**FAGUET, ÉMILE.** See **FRENCH LITERATURE. FAILURES.** See **FINANCIAL REVIEW.**

**FALKLAND ISLANDS.** A group of islands in the south Atlantic, constituting a British crown colony. Area, 6500 square miles. Area of South Georgia, a dependency, 1000 square miles. Population (estimated 1909), exclusive of the South Georgia whaling settlement, 2323. Births (1909), 54; deaths, 20. Number of children receiving instruction, 428. Capital, Stanley, (800 inhabitants), on East Falkland. The chief industry is sheep-farming; pasturage, 2,325,154 acres. Number of sheep in 1909, 715,651; in 1908, 688,705. Imports (1909), £98,862 (Great Britain, £89,566); exports, £216,514 (Great Britain, £180,235). Chief exports in 1909: wool, £135,818; whale oil, £45,500; sheepskins, £16,071; tallow, £11,483; sealskins, £1070; hides, £991. Tonnage entered (1909), 160,262 (149,296 British); cleared, 150,772 (British, 144,538). Revenue and expenditure in 1909, £27,409 and £19,913 respectively (of which ordinary, £17,609 and £16,386), as against £23,874 (ordinary, £17,775) and £20,369 (ordinary, £15,685) in 1908. Governor (1910), William Lamond Allardyce. Besides South Georgia, other dependencies are the South Shetlands, the South Orkneys, the Sandwich group, and Graham's Land.

**FARM ANIMALS.** See **STOCK RAISING**; also paragraphs on the subject in articles on countries.

**FARM ANIMALS, DISEASES OF.** See **VETERINARY SCIENCE.**

**FARM EDUCATION.** See **AGRICULTURAL EDUCATION.**

**FAUST, A. B.** See **LITERATURE, ENGLISH AND AMERICAN, Political and Social Science.**

**FEDERAL APPROPRIATIONS.** See **UNITED STATES.**

**FEDERAL CIVIL SERVICE.** See **CIVIL SERVICE.**

**FEDERAL COUNCIL OF CHURCHES OF CHRIST IN AMERICA.** An organization formed as an outgrowth of the inter-church conference held in New York City in 1905, when a definite plan was proposed looking to the organization of a Federal Council of the Churches of Christ in America. During 1906-08 this plan was presented to and approved by 32 denominational bodies. In 1908 the first meeting of the Federal Council was held in Philadelphia. Its organization was at that time

completed, officers were elected and a working plan was agreed upon. The Council is composed of 400 officially appointed representatives from 32 denominations which have 100,000 ministers and 16,000,000 members. The objects of the Council are: first, to express the fellowship and catholic unity of the Christian church; second, to bring the Christian bodies of America into united service; third, to encourage devotional fellowship and mutual counsel concerning the spiritual life and religious activity of the churches; fourth, to secure a larger combined influence of the churches of Christ in all matters affecting the moral and social conditions of people so as to promote the application of the law of Christ in every relation of human life; fifth, to assist in the organization of local branches of the Council and to promote its aims in their committees.

During 1910 the Council labored for the achievement of a plan of coöperative advance in home missions. Upon the basis of an investigation of religious conditions in Colorado, a report was formulated by a joint committee composed of the committee on Home Missions of the Federal Council and a special committee appointed by the Home Mission Council. These recommendations were adopted by boards aiding over 5000 of the 6066 listed missionaries west of the Mississippi River. The work of the Commission on the Church and Social Service was of special importance during 1910. The Council issued a call entitled "The Church's Appeal in Behalf of Labor" and a report concerning the industrial situation at South Bethlehem, Pa. Progress was made in State federation work. A working programme providing practical methods of coöperation, and substituting comity for rivalry, has received such wide official sanction that the danger of unhappy divisions and waste of spiritual energy has been decreased.

The denominations embraced in the federation are the following:

Baptist Church (North), Free Baptist Church, Negro Baptist Church, Christian Connection, Congregational Church, Disciples of Christ, Evangelical Association, Evangelical Synod, Friends, Evangelical Lutheran Church, General Synod, Methodist Episcopal Church, Methodist Episcopal Church (South), Primitive Methodist Church, Colored Methodist Episcopal Church of America, Methodist Protestant Church, African Methodist Episcopal Church, African Methodist Episcopal Zion Church, Menonite Church, Moravian Church, Presbyterian Church in the U. S. A., Cumberland Presbyterian Church, Welsh Presbyterian Church, Reformed Presbyterian Church, United Presbyterian Church, Protestant Episcopal Church, Reformed Church in America, Reformed Church in the U. S. A., Reformed Episcopal Church, Seventh Day Baptist Churches, United Brethren in Christ, United Evangelical Church.

The officers in 1910 were as follows: President, Bishop E. R. Hendrix; Corresponding Secretary, Rev. E. B. Sanford, D.D.; Chairman of the Business Committee, Rev. Howard B. Grose, D.D.

**FEDERAL EXPENSES.** See **UNITED STATES.**

**FEDERAL JUDICIARY.** See **UNITED STATES.**

**FEDERATED MALAY STATES, THE.** Five states occupying a large part of the Malay Peninsula; a British protectorate.

**AREA AND POPULATION.** The five states, with their area and population in 1901, are as follows: Perak, 6580 square miles, 329,665 inhabitants; Selangor, 3200, 169,789; Negri Sembilan, 2600, 96,028; Pahang, 14,000, 84,113; Trengganu, 4500; 115,000. Total area, 30,880 square miles; population, 793,595 (both necessarily approximate). Estimated population in 1909 (exclusive of Trengganu), 966,000. None of the following statistics applies to Trengganu. Largest town, Kuala Lumpur (45,000 inhabitants), in Selangor. Schools (1908), 331, with 20,916 pupils (282 Malay vernacular, with 15,621). Kuala Lumpur has a very complete Institute for Medical Research.

**PRODUCTION.** The principal agricultural productions are rubber, rice, coconuts, coffee, sugar, tapioca, pepper, gambier, and nipa palms. Area planted to rubber at end of 1908, 180,635 acres; number of trees estimated at over 26,000,000. Area of rice fields irrigated by the Krian irrigation works in Perak, 70,000 acres. Length of irrigation canal, 21 miles; of branches, 16½; of distributory canals, 188½. The forests yield timber, gutta percha, oils, resins, canes, and fruits. Timber yield (1908), 279,016 tons; firewood for the mines, 400,000 tons. Gross revenue of the Forest Department, £65,410. Tin output (1908), 50,837 tons, valued at £6,654,017; gold, 14,887 ounces (13,653 from Pahang), as against 15,353 (14,286 from Pahang) in 1907. Lead, iron, copper, bismuth, mercury, arsenic, manganese, plumbago, silver, and zinc are found.

**COMMERCE AND FINANCE.** Imports and exports (exclusive of specie and bullion) and revenue and expenditure for three years are given in Straits Settlements dollars (1 dollar = 56.7758½ cents) below:

	1907	1908	1909
Imports .....	56,867,472	51,343,592	46,194,598 a
Exports .....	82,254,433	66,421,978	76,273,438 b
Revenue .....	28,793,750	24,623,325	25,246,863 c
Expenditure .....	20,224,762	25,854,573	23,633,851 d

(a) Live animals, foods, drinks, and narcotics, 29,361,693 dollars; raw materials, 3,827,344; manufactured articles, 10,899,451; sundries, 127,336; bullion and specie, 1,978,744.

(b) Tin and tin ore, 54,894,224 dollars; rubber 14,455,982; sugar, 848,770; copra, 726,884; gold bullion, 516,222; rice, 480,951; paddy, 387,062.

(c) Customs, 11,259,326 dollars; railways, 5,377,409; posts and telegraphs, 556,688; forest revenue, 487,133; licenses and excise, 3,137,153; land revenue, 1,312,238; land sales, 284,146.

(d) Personal emoluments, 5,183,243 dollars; other charges (establishment), 3,846,901; railways, 7,469,342; public works, 6,015,090.

Vessels entered (1909), exclusive of native craft, 4674, of 1,610,777 tons.

**COMMUNICATIONS.** Total railways open for traffic at end of 1909, 469 miles. Length of telegraph and telephone lines (end of 1909), 1437 miles; wires, 4311. Post-offices, 61.

**GOVERNMENT.** Each native state is represented in the federal council (constituted in 1909), which deals with matters common to the states. The rubber and tin interests have special representation. The chiefs preside over local affairs. Sir John Anderson (the governor of the Straits Settlements) is high commissioner. Resident-general (1910), Sir William Thomas Taylor (R. G. Watson, acting).

Trengganu, one of the states ceded by Siam to Great Britain (March 10, 1909), joined the Federated Malay States February 18, 1910. It

had never formally acknowledged the suzerainty of Siam.

## FEDERATION OF WOMEN'S CLUBS.

See WOMEN'S CLUBS, FEDERATION OF.

## FEEBLE-MINDED. See INSANITY.

**FEEBLE-MINDED, SCHOOLS FOR THE.** See EDUCATION IN THE UNITED STATES.

## FEEDING STOCK. See STOCK RAISING.

## FEMINA CUP. See AERONAUTICS.

**FENCING.** The seventeenth annual inter-collegiate tournament was won by the United States Naval Academy. The United States Military Academy finished second and the University of Pennsylvania third. The individual champion was Harry F. Wendel of Pennsylvania. In dual matches the Naval Academy defeated Princeton, Columbia, Pennsylvania and Yale. West Point defeated Pennsylvania, Princeton, Columbia and Cornell. Pennsylvania defeated Princeton, Cornell, Yale, Cincinnati and the University of Chicago. In the championships held by the Amateur Fencers' League, the foils were won by G. K. Bainbridge of the New York Athletic Club, the dueling swords by A. Delapore of the Fencers' Club of New York and the sabres by Joseph I. Shaw, also of the Fencers' Club. The New York Athletic Club won the contest for the Saltus medal and the Fencers' Club of New York carried off the Manrique Cup. The championship of the United States Army at broadswords went to Corporal J. D. Lohmann of the 115th Company of the Coast Artillery.

**FERTILIZERS. EXTENSION OF USE.** Exhaustion of the natural fertility of soils and the steady introduction of more intensive methods of agriculture are resulting in a constant extension of the use of fertilizers. Even in more recently settled regions the use of fertilizers is rapidly extending. In Australia, for example, the consumption of fertilizers increased from 12,500 tons in 1898 to 87,000 tons in 1910. In the United States their use is rapidly extending to regions where they were never used before and increasing in the older portions of the country. Fertilizers are, however, being more intelligently used than ever before.

A realization of the importance of conserving the natural supplies of fertilizing materials has led Germany recently to take additional precautions to protect her potash deposits and the United States to guard her phosphate deposits from wasteful exploitation and export. The Chilean nitrate deposits are, however, still being wastefully mined.

**CHILEAN NITRATE.** Following the dissolution of the Chilean nitrate syndicate in 1909 many new nitrate works (several controlled by American interests) were opened, prices fell, and the consumption of nitrate greatly increased, particularly in the United States. A United States Consular report states that 3,942,648 tons of nitrate were mined in Chile during the first nine months of 1910, as against 3,200,039 tons during a like period in 1909. The exports for the first nine months of 1910 were 3,092,506 tons, of 1909 2,847,564 tons. The world's consumption for the period was 4,399,698 tons in 1910 and 3,612,020 in 1909. The consumption of nitrate in the United States increased from 120,618 tons in 1907 to 458,081 tons in 1909. The price of nitrate is now so low that nitrogen in this most valuable form for fertilizing purposes can be bought at a lower price than in the less avail-

able forms of blood, tankage, and the like. Despite low prices and wasteful methods of handling, the Chilean nitrate industry appears to be prosperous and the deposits seem able to supply the world with nitrate for many years to come. Considerable nitrate deposits in San Bernardino, California, similar to those of Chile, were reported upon during the year.

**SULPHATE OF AMMONIA.** The production of sulphate of ammonia increased from 985,000 tons in 1908 to 1,059,839 tons in 1909. The United States produced 106,260 tons in 1909 as against 87,000 tons in 1908, and consumed 149,192 tons in 1909 as against 121,000 in 1908. These figures indicate that steps are being taken to reduce the waste of this valuable by-product of the manufacture of gas and coke.

**CALCIUM CYANAMIDE.** The manufacture of nitrogen compounds from the air by electrical processes was extended during the year and new factories were established in Europe and Japan. The first shipment (26 tons) of calcium cyanamide was made Dec. 14, 1909, from the American works at Niagara Falls, Ontario. These works are said to have a capacity of 40,000 tons per year. The product is sold only to fertilizer manufacturers. The value of this material as well as of the basic lime nitrate prepared by the Birkeland and Eyde process is well established and their use for fertilizing purposes is extending. A new process of fixing atmospheric nitrogen, using aluminum carbide or a mixture of clay and charcoal heated in an electric furnace, which it is claimed is cheaper and simpler than processes now in use, was announced during the year.

**POTASH—THE GERMAN INDUSTRY.** There were unconfirmed reports during the year of the discovery of potash deposits in Florida, China, and elsewhere, and important new mines were developed in Austria, but the bulk of the potash supply of the world continues to be drawn from the potash mines of Germany. The German potash syndicate which controls the output of these mines and the prices of the salts was dissolved in 1909. The syndicate was almost immediately renewed, but before this was done certain American interests made contracts with some of the mines for large deliveries of potash salts at greatly reduced prices, not, however, to be sold directly to farmers, but to manufacturers of fertilizers. After the renewal of the syndicate a law was enacted throwing additional restrictions around the mining and export of potash salts, and in a measure, it is claimed, invalidating the American contracts. The Secretary of State has been appealed to to intervene in behalf of the American interests, but the outcome is still uncertain and it remains to be seen whether the price of potash to the ultimate consumer will be materially affected.

Germany mines about 6,600,000 tons and exports about \$35,000,000 worth of potash salts annually. Since the mines are not inexhaustible it is obviously good national policy to conserve this great natural resource.

The amount of pure potash used for agricultural purposes increased from about 297,000 tons in 1901 to 646,600 tons in 1909, the largest consumers in the latter year being Germany, 336,376 tons, and the United States, 162,376 tons.

Efforts were made during the year to exploit other sources of potash, such as ground lava (phonolite) and similar substances, but the potash in these substances was shown to be in

such insoluble form (silicate) that they are of little value as compared with potash salts.

**PHOSPHATES.** The exploitation of new phosphate deposits was actively continued during 1910. The phosphate fields of the Western United States (in Idaho, Utah, and Wyoming) were more fully explored and examined by the U. S. Geological Survey and Bureau of Soils. The area of phosphate lands now withheld from public entry is 2,551,399 acres and the estimated tonnage of available high-grade (70 per cent.) phosphate in the area examined is 266,950,000 long tons. There is in addition a large amount of intermediate and low-grade phosphate. On account of the inaccessibility of the deposits only a small amount of the phosphates is mined, and this is sent to California for the manufacture of superphosphates. The world's production of phosphates was 5,138,600 tons in 1909 as compared with 5,596,289 tons in 1908. Of these amounts the United States consumed 2,214,600 tons in 1909 and 2,444,187 tons in 1908. Improved processes for the conversion of raw and low-grade phosphates into efficient phosphatic fertilizers were introduced during the year.

**THE USE OF LIME.** There was also a marked revival of interest in the use of lime as a soil improver, particularly as regards the general applicability of the practice of liming and the most economical and efficient forms of lime to use. The experiments reported leave no doubt of the wide need of liming and indicate that ground limestone and burnt lime are, as a rule, about equally effective when used at rates supplying equivalent amounts of actual lime (100 of pure limestone to 56 of pure lime). That form of lime should be chosen which gives the largest amount of actual lime in the finest state of division at the lowest cost. Boron, like manganese, in small amounts was shown to have a certain value as a fertilizer or stimulant, probably through catalytic action.

**FESSENDEN SYSTEM OF WIRELESS TELEGRAPHY.** See WIRELESS TELEGRAPHY.

**FESTIVALS, MUSICAL.** See MUSIC.

**FICTION.** See LITERATURE, ENGLISH AND AMERICAN; FRENCH LITERATURE; GERMAN LITERATURE.

**FIELD ARTILLERY.** See MILITARY PROGRESS.

**FIELDING, WILLIAM S.** See CANADA, Government and History.

**FIGUERAS-CHIQUEZ, JOSÉ MARÍA.** A Porto Rican jurist, died December 2, 1910. He was born in San Juan, Porto Rico, in 1851 and was educated in a Jesuit college in Porto Rico and in the University of Santiago de Galicia in Spain. He became a licentiate in civil and canonical law at Madrid in 1879. From this year until 1892 he practiced law in San Juan, Porto Rico. From 1892 to 1895 he was connected with the Audencia Territorial Syndicate de Cuba, first as secretary and later as assistant prosecuting attorney. In 1895 he became a judge of the first instance at Mayagüez. He received a military appointment to the Supreme Court of Porto Rico, retaining the position under the provisional government, and in 1900 his position was continued under presidential appointment.

**FIJI ISLANDS.** A group of islands in the South Pacific; a British crown colony. Area, including 225 small islands, 7435 square miles. Largest islands: Viti Levu, 4112; Vanua Levu, 2432. Population (1901), 120,124 (Europeans,

2479; Fijians, 94,397); 1908 estimate, 130,091. European births in 1908, 70; deaths, 49; Fijian, 3327 and 3242. Suva, the capital (on Viti Levu), had (1906) 1121 European inhabitants. There are government and mission schools. In 1908, 4037 acres were under bananas; 29,036 under coconuts; 48,052 under sugar cane; 1191, corn; 4800, rice; 211, yams; 200, tea; 238, tobacco; 79, peanuts; 13, pineapples. There were 4950 horses, 36,385 cattle, 2971 sheep, 19,446 goats. Almost the entire trade is with British possessions.

The following table gives statistics for four years:

	Imports	Exports	Revenue	Expenditure
1909 ....	£636,250	£947,136	£177,909	£187,684
1908 ....	662,654	878,394	178,015	197,798
1907 ....	643,007	881,364	179,802	156,811
1906 ....	609,496	603,410	185,424	149,374

Total tonnage entered and cleared (1908), 478,933. Public debt (1909), £114,115.

The governor (1910, Sir Everard F. im Thurm) is high commissioner for the Western Pacific. Local affairs are in the hands of native chiefs, subject to approval by the governor.

**FILTRATION.** See WATER PURIFICATION.

**FINANCE.** See paragraphs on the subject in articles on countries and on States of the United States.

**FINANCE, RAILWAY.** See RAILWAYS.

**FINANCIAL REVIEW.** This article includes, besides a general statement of financial and business tendencies of the year in the United States, England and Germany, special paragraphs on *Bank Clearings*; *Stocks and Bonds*, including stock exchange transactions, important dividend changes, and new issues; *Building*; and *Commercial Failures*. The *YEAR BOOK* includes also articles on *BANKS AND BANKING*; *CENTRAL BANK*; *CURRENCY*; *NATIONAL BANKS*; *STATE BANKS*; *LOAN AND TRUST COMPANIES*; *SAVINGS BANKS*; *POSTAL SAVINGS BANKS*; *NATIONAL MONETARY COMMISSION*; *PRICES*; *TARIFF*; and *TRUSTS*. All of these articles supplement the present article and should be consulted for special phases of the year's financial and industrial history. See also separate articles on *industries and crops*, *IRON AND STEEL*; *COPPER*; *COTTON*; *SUGAR*; *GOLD*; *SILVER*, etc.; paragraphs on *Commerce* in the articles on foreign countries and the United States; *RAILWAYS*; *AGRICULTURE*, etc.

**BUSINESS CONDITIONS. RETRENCHMENT.** The most conspicuous fact regarding the financial history of the year 1910 was the failure of business to realize the optimistic promises of the closing months of 1909. It was a year of disquietude, uncertainty and unusual business caution. Following the panic of 1907 a very marked depression continued until about the middle of 1908; then began a very remarkable industrial recovery which continued through the year of 1909 and even into the earlier weeks of 1910. The past year is perhaps best viewed as one of readjustment and retrenchment, following a year and a half of too rapid growth. It was a year of some new maximum records, but on the whole a year of business contrasts. While it was notable for the largest bank deposits and loans in our history, for bank clearings exceeded only in 1909, for the greatest volume of foreign trade in any year, and for many new

records in agricultural production and even in manufacturing output, it was also notable for a greater number of labor disturbances than in any year since 1903 and for the great number of mills in cotton, wool, iron and steel manufacturing which were either closed or running on part time during a portion of the year. During the earlier months trade and commerce were at the highest level for the year; there was a decided decline from spring to early fall; and, although this recession continued in some respects, there was a more hopeful tone in business circles toward the close of the year; foreign trade especially revived, exports in December establishing a new maximum monthly record. The contrast in the amount of business is shown in the fact that the average daily bank clearings (q. v. below) were \$553,000,000 in the first quarter of the year; \$414,000,000 in the second quarter; and \$475,000,000 in December. They fell from a total of \$17,000,000,000 for January to \$11,300,000,000 for September. Similarly pig-iron production amounted to 84,148 tons per daily average in January as compared with 61,200 tons for December. Whereas steel plants were running at 90 per cent. of full capacity at the opening of the year, they were running at 55 per cent. capacity at the close of the year. No doubt the chief cause of this decline was the falling off in the demands by the railways. The decline in railway demands was in turn due in part to the uncertainty existing throughout the latter half of the year with respect to increases in freight rates. Gross earnings of railways for the first 11 months were greater than for the corresponding months of 1909, when they were the greatest in our history; but the excess over 1909 fell from a monthly average of \$28,000,000 for the first six months to a monthly average of \$8,700,000 for the next five months. This excess over 1909 was \$31,983,000 in May, but only \$1,472,000 in November. Net earnings reflected the changing volume of business even more decidedly. In the first five months they were greater than in the same months of 1909 by an average of \$6,000,000 per month; but in October they were \$11,029,000 smaller than in October, 1909. In April the railways had proposed a general advance in rate schedules to compensate themselves for the increases they were making in the wages of their employees and other increases in the cost of operation. The government, at the instance of shippers, had intervened to prevent such an advance. Thereafter, while extensive hearings were being held in various cities to determine the rightfulness of the proposed increases, the railways practiced economy by reduced purchases of iron and steel products. The effect on the earnings of the United States Steel Corporation was noticeable. While the corporation reported net earnings \$10,000,000 greater than in 1909 and \$50,000,000 greater than in 1908, its earnings fell from \$77,788,000 for the first half-year to \$63,356,000 for the second half. Moreover its unfilled orders fell from 3,971,000 tons July 31 to 2,674,000 tons December 31. Its maximum production was reached in February, after which there was a more or less steady decline. Nevertheless pig-iron production was about 27,000,000 tons as against 25,795,000 tons, the previous high record made in 1909; and ingots and castings exceeded the 1909 record by nearly a million tons. This record of the steel business is somewhat typical

of business for the year. Although many new records were established there was a tone of uncertainty and a decline in the scale of operations as the year progressed.

**THE TARIFF AND BUSINESS.** The most important cause of the ultra conservative tone of business was the political unrest. This was due primarily to dissatisfaction with the Payne-Aldrich tariff and created the feeling that further revision of the tariff was practically certain in the immediate future. This prospect alone was sufficient to give unusual caution to the scope of business ventures, and at all events it greatly limited speculative undertakings. In connection with this should be mentioned the unusual level of commodity prices and the general feelings of discontent resulting therefrom. Prices of raw material, especially in cotton, tended to a restriction of manufacturing activity. Prices of raw cotton ranged from 19½ to 13½ cents per pound. This was the highest maximum since 1873, and the highest minimum since 1874. Cotton mills in both the north and the south were generally running on part time and at only 50 to 75 per cent. of capacity in the spring and summer. The new cotton crop favored resumption in most cases at full capacity. The high price of cotton made the value of cotton exports for the year \$530,136,000, an increase of \$68,700,000 over 1909, and far the greatest value ever exported. Somewhat similar conditions existed in the woolen trade, some foreign raw wool being re-exported early in the year; but business tended to revive on the basis of the new wool clip.

**INCREASED IMPORTS.** In spite of high prices the year was one of undoubted extravagance in expenditures, although high prices were responsible for a notable meat boycott in Ohio and neighboring States and for some recession in consumption in many lines during later months. There was an unprecedented importation of articles properly classed as luxuries and a most remarkable development of the automobile trade. The monthly imports were \$163,000,000 in March, or \$30,000,000 in excess of March, 1909; but by November had fallen to \$117,000,000, or \$4,000,000 less than the same month in 1909. The total imports were 5.4 per cent. above the preceding years. The high level of prices made this a good country to sell in and a poor country to buy in. In five out of the twelve months imports exceeded exports. This great increase in imports endangered the command of American banks over gold and was a cause of relatively high rates of interest during a considerable part of the year. Gold exportation was very large in the spring and money rates were high not only in the West and Southwest, where land speculation was extensive, but also in New York, where banks pursued a policy of avoiding speculative loans. The report of the Comptroller of the Currency showed that the average interest rate of National banks was 7.33 per cent., of State banks 7.73 per cent., and of trust companies 6.66 per cent. One result of this was that, although the amount of new securities floated in the United States was only slightly less than in the preceding year, about \$150,000,000 of American railway bonds were sold in London and Paris. The dealings of the New York Stock Exchange showed a decline of 33 per cent. in stocks and 50 per cent. in bonds, as compared with 1909. Moreover the average value of securi-

ties reached the lowest level since the panic of 1907.

**TRUST PROSECUTIONS.** Another important cause of business uncertainty was due to the great number of trust prosecutions and the consequent doubt regarding the legal status of big business. While the President stated in his annual message that "the great body of business men of this country, those who are responsible for its commercial development, now have an earnest desire to obey the laws and to square their conduct of business to its requirements and limitations," the Administration nevertheless pushed forward an unusual number of prosecutions for the violation of the anti-trust law. Among these cases were those of the Standard Oil and American Tobacco companies, which were argued before the Supreme Court early in the year and set for reargument early in 1911. On account of the great importance of these cases for the future of such combinations, business seemed to wait for the final pronouncement of the Court.

**STATISTICS.** The following are some of the important statistical facts of the financial year:

		Changes from 1909	
		Per cent.	
Corn produced.....	3,125,713,000 bu.....	12.7	inc.
Wheat produced.....	695,443,000 bu.....	5.7	dec.
Oats produced.....	1,126,765,000 bu.....	11.8	inc.
Barley produced.....	162,227,000 bu.....	4.7	dec.
Potatoes produced.....	338,811,000 bu.....	10.0	dec.
Hay produced.....	60,978,000 T.....	6.0	dec.
Tobacco produced.....	984,349,000 lbs.....	3.6	inc.
Cotton produced.....	12,000,000 bales.....	13.1	inc.
Wool clip produced.....	321,362,000 lbs.....	2.1	dec.
Sugar produced.....	1,565,000 T.....	.6	inc.
Aggregate value of			
farm products.....			
Bank clearings .....	\$8,926,000,000.....	3.4	inc.
Bank clearings .....	\$162,000,000,000.....	1.3	dec.
Imports, merch.....	\$1,562,000,000.....	5.4	inc.
Exports, merch.....	\$1,864,000,000.....	6.6	inc.
Total inter. trade..	\$3,426,000,000.....	6.0	inc.
Stock sales (New			
York Exchange)			
Bond Sales (New	166,000,000 shar.	23.0	dec.
York Exchange)			
Pig-iron output.....	\$634,000,000.....	52.0	dec.
Labor Strikers.....	27,200,000 T.....	5.4	inc.
New secur. issued.....	550,000.....	146.0	inc.
Railways built, mi..	\$1,518,272,000.....	10.0	inc.
Cars built.....	4,122.....	20.0	inc.
Locomotives built..	185,357.....	92.0	inc.
	4,755.....	64.0	inc.

**BANK CLEARINGS.** One of the principal indexes of the total amount of trade is the aggregate bank clearings. This aggregate for 111 principal cities of the United States in the calendar year 1910 was \$161,785,328,000; this may be compared with \$164,200,860,000 in 1909; and with \$84,582,450,000 for 114 cities in 1900. While the total was larger than in any year except 1909 some allowance should be made for the differences in price levels, especially for comparisons for years preceding 1907. The following figures giving the aggregate clearings for these cities in millions of dollars by months are suggestive of the general course of trade during the year: Jan., 16,987; Feb., 12,963; March, 14,835; April, 13,853; May, 12,995; June, 13,662; July, 13,137; Aug., 11,366; Sept., 11,188; Oct., 13,599; Nov., 13,414; Dec., 14,749. While the clearings for the month of January were the largest in American history for any one month, and while those for each of the first four months were larger than those for corresponding months in any preceding year, the aggregate clearings for the third and fourth quarters were less than in 1909 or 1906.

The total clearings at New York were \$97,274,500,000, an amount exceeded only in 1909

and 1906. The proportion of the total clearings credited to New York was smaller than in any year of the decade, due mainly to the increases shown by cities in agricultural sections; the rather noticeable decline of the later months was very largely due to a falling off in New York clearings, explained by a decided fall in stock and bond transactions. There were 60 other cities with clearings of more than \$100,000,000 for the year. Those with more than \$1,000,000,000 each were Chicago, \$13,939,689,000; Boston, \$8,299,320,162; Philadelphia, \$7,689,664,085; St. Louis, \$3,727,949,379; Kansas City, \$2,634,557,738; Pittsburgh, \$2,587,325,784; San Francisco, \$2,323,772,870; Baltimore, \$1,626,876,299; Cincinnati, \$1,151,797,050; Minneapolis, \$1,155,659,664; Cleveland, \$1,000,857,952. This last city ousted New Orleans from the thirteenth place, the Southern city being about \$13,000,000 lower.

Fourteen Canadian cities had aggregate clearings of \$6,054,298,000 in 1910. Of this amount, one-third was credited to Montreal; one-fourth to Toronto; and almost one-sixth to Winnipeg. The total was about 16 per cent. larger than for the preceding year, and 45 per cent. larger than that for 1908.

**STOCKS AND BONDS.** In general the stock market contrasted sharply with the preceding year. The buoyant upward movement of the later months of 1908 and all of 1909 was replaced by contraction, pessimistic feeling, and desultory interest on the part of the investing public. The collapse of the Columbus and Hocking Coal and Iron pool on January 19 resulted in the failure of three stock exchange houses; and on February 1 the firm of Fisk & Robinson went into bankruptcy. So great was the liquidation in January that Union Pacific stock declined 20 points; Reading, 17; United Copper, Southern Pacific, and St. Paul, 13; United States Steel and New York Central, 10. The decline in values continued until late July, though some stocks reached their low points in August and September. Thereafter there was a moderate recovery. The early decline was due in part to the President's anti-trust message of January 7 (see TRUSTS) and the activity of the Department of Justice against beef packers, the Union and Southern Pacific railways, and other combinations. These events were slightly counteracted by an extra dividend on United States Steel common. In March the Bank of England advanced its discount rate for the first time since 1878. In that month, the Standard Oil and corporation tax cases were argued before the Supreme Court; railways were threatened with strikes; the political unrest caused uncertainty; and unfavorable foreign trade conditions led to the exportation of \$36,000,000 of gold, the largest monthly exportation of that metal since 1904 and the second largest in our history. The unfavorable events were only modified in small degree by an increase in the dividend rate by the New York Central Railroad and two decisions of the Supreme Court annulling rulings of the Interstate Commerce Commission. In May foreign investments in American securities were large; and the stock market was active with declining prices. The sharp decline in June was due to the Federal injunction against higher railway rates. The downward movement ended in July with lower net earnings, general and persistent demands for higher wages, and a cut in the divi-

dend of the National Lead Company. Security prices were in general lower than at any time since the panic of 1907. At this time occurred a notable stock movement whereby a syndicate purchased Rock Island, Pearson-Farquhar, and other stocks. In the early fall shipments of currency for crop movements and political agitation were offset by gold importation and good crops. But in September the volume of dealings was the lowest in any month since 1904. Good crops, lower prices of raw materials, and the decisions of the circuit court sustaining the combination of the anthracite roads, resulted in ascending prices, in spite of pessimistic statements by Mr. James A. Hill, new anti-trust suits, and the closing of two banks in New York City.

The total transactions of the New York Stock Exchange for the year were 163,970,440 shares of stocks and \$634,746,503 par value of bonds. This was the smallest number of shares of stocks in 10 years except in 1903; and the smallest value of bonds in 10 years except in 1907. Compared with 1909 there were 23 per cent. fewer shares of stocks and 52 per cent. smaller value of bonds.

The following are the important railway dividend reductions for the year: The Pennsylvania Company reduced its dividends from 7 to 8 per cent.; St. Louis and Southwestern, from 5 to 4; Chicago and Alton passed its 2 per cent. semi-annual dividend in August. These increases were made: Canadian Pacific, 6 to 7; Chesapeake and Ohio, 4 to 5; Lehigh Valley, 6 to 10; Evansville and Terre Haute, 4 to 5; Louisville and Nashville, 6 to 7; Mobile and Ohio, 2½ to 4; St. Louis and Iron Mountain, 4 to 6; Nashville, Chattanooga and St. Louis, 5 to 6; New York Central, 5 to 6; New York, Chicago and St. Louis, 0 to 3; New York and Harlem, 0 to 1½; Reading, 4 to 6; Western Maryland, 0 to 4. According to the compilation of the *Journal of Commerce and Commercial Bulletin*, the aggregate new stocks, bonds and short term notes issued by all corporations in 1910 was equal to \$1,518,272,000. This was 10 per cent. less than in 1909, but almost 7 per cent. greater than in 1908, and 8½ per cent. greater than in 1907. Railroad and traction companies issued \$876,581,000 or \$138,625,000 less than in 1909; and industrial and other corporations issued \$641,691,000 or only 2 per cent. less than the year before. The great decrease in railroad issues was due to a decline of \$105,707,000 in bonds and \$193,083,000 in stocks, together with an increase of \$160,164,000 in notes. The railroad issues were: Bonds, \$547,649,000; stocks, \$115,981,000; notes, \$212,951,000. Industrial and miscellaneous corporations issued: Bonds, \$290,846,000; stocks, \$289,091,000; notes, \$61,753,000. The same journal reported the aggregate capital of new companies, with at least \$1,000,000,000 capital incorporated in the Eastern States, at \$1,967,617,000. This amount was exceeded in 1906, 1901 and 1900; but was 25 per cent. greater than in 1909 and 41 per cent. greater than in 1908. The aggregate capital of all new companies with more than \$100,000 capital each for these same States was \$2,869,000,000.

**BUILDING.** Expenditures in building operations, as reported to *Bradstreet's* from 114 cities, showed a total of \$838,933,000, a decrease of 4.8 per cent. compared with 1909. There was a decrease shown by every month in comparison

with the corresponding month of 1909, except March and June. Nevertheless the total was about 30 per cent. more than for the after-panic year 1908. Of the 114 cities, 60 showed gains over 1909, and 54 losses.

**FAILURES.** (a) *Commercial.* The total number of business failures for the year, as reported by *Bradstreet's*, was 11,573. This was a decrease of 2.3 per cent. compared with 1909 and of 21 per cent. compared with 1908; the number was greater than in any year since 1896. The failures in 1910 were only .72 per cent. of the 1,592,509 concerns in business in the United States, the smallest percentage ever reported by that periodical. The failures in the first quarter numbered 3302; in the second quarter, 6604; in the third quarter, 2655; and in the fourth quarter, 3027. The number for the New England States was 1285; for the Middle States, 3773, of which 2144 were in New York and 1177 in Pennsylvania; Western States, 2086; Northwestern States, 646; Southern States, 2673; Far Western States, 1088; Territories, 37. The total assets of the failing concerns were \$94,718,000; and the total liabilities \$188,399,060. The assets were 50.2 per cent. of the liabilities as compared with 49.2 per cent. in 1909, 56.9 per cent. in 1908 and 75 per cent. in 1907. A considerable number of the suspensions were due to causes growing out of the crisis of 1907 and many others were due to conditions apart from current influences. Nevertheless there were some large failures in lumber, iron and steel, jewelry, tobacco, automobiles, and some lines of textile manufacture which were more or less directly due to current conditions. The percentages of failures due to different causes were as follows: Incompetence, 26.6; inexperience, 4.4; lack of capital, 33.9; unwise credits, 1.7; failures of others, 1; extravagance, .7; neglect, 2.5; competition, 2.6; specific conditions, 14.4; speculation, 1; fraud, 11.2. Compared with immediately preceding years the lack of capital, unwise credits and failures of others were less important causes and incompetence a more important cause.

(b) *Financial.* For failures of banks and loan and trust companies, see articles on the different kinds of banks.

(c) *Canada.* The total number of failures in Canada and Newfoundland was 1465. This was a decrease of 7 per cent. from 1909, and of 14 per cent. from 1908. The total assets were \$1,022,000 and the total liabilities \$15,563,000. The latter were 22 per cent. greater than in 1909, but 12 per cent. less than in 1908. About four-fifths of all the failures and five-sixths of the liabilities were classed under individual names. The lack of capital was the cause of 46.8 per cent. of the failures; incompetence of 14.9 per cent.; fraud 9.5 per cent.; specific conditions of 18.7 per cent.

**GREAT BRITAIN.** The financial year of Great Britain was disturbed by the death of the sovereign and by two hotly contested elections. Nevertheless the year was fairly good, in some respects excellent financially. Bank clearings were the best ever known, as were also the flotation of new securities, and domestic and foreign trade. The year closed, as in the United States, with a general increase of optimism and a more buoyant tone. Yet there was in the background a feeling of caution due to world-wide social unrest, disturbed political conditions in Great Britain and the United States, prospective de-

mands for gold by Brazil, and the belief that the new flotations during the past three years were greater than the market could absorb. To these must be added the increased revenue demands of the government leading to high taxation. Governmental expenditures were already encroaching upon such emergency measures as the income tax. Taxation in general was the highest in normal times in many years, with the result that British consols came very near to the lowest point ever reached. The early months of the year were notable for a wild speculation in the stocks of rubber and oil companies which sprang into existence with mushroom rapidity. The rubber speculation based on plantations in the East Indies and the Malay Archipelago were especially wild. It was estimated at the close of the year that one-third of these rubber and oil companies would prove worthless. A notable feature of the London stock market was that their flotations of new securities were by far the greatest in amount ever put out. The total was £275,000,000, £216,000,000 for the first nine months. The total for 1909 was £182,000,000; for 1908, £192,000,000; and the maximum for the preceding 20 years was £189,400,000 issued in 1889. Of the new securities of the first nine months of 1910, £26,000,000 were issued by colonial governments and corporations; £42,000,000 by foreign railways; £22,000,000 by foreign governments and corporations; £9,000,000 by Indian and Colonial railways; £18,000,000 by rubber companies; £8,000,000 by oil companies in foreign parts of the world. Altogether £38,000,000 of the new capital issues were destined for the United States; £31,000,000 for Canada; £10,000,000 for Argentina, and £11,000,000 for Brazil.

The aggregate value of 387 stocks traded in on the London exchange was £3,709,574,000 in January; this rose slightly until April and thereafter declined more or less steadily until November, with a slight recovery in October, and a slight rise again in December to £3,647,692,000. There was thus a loss for the year of £60,000,000, or 1.6 per cent. This was in large part due to the declines in the value of American railway stocks. English railway securities were either stationary or increased in value owing to the great volume of the internal trade.

Industrially the year was marked by a great number of strikes, with especially serious interruptions of the cotton and ship building industries (see STRIKES AND LOCKOUTS). For a time the cotton trade was forced to restrict output on account of the high price of raw material. Wool also was high. But on the whole, as shown by greatly decreased unemployment and the great volume of internal and international trade, the year was good in industry and commerce. The international trade amounted to \$5,900,000,000, a gain of 10.7 per cent. over 1909 and of 4 per cent. above the maximum record of 1907. This total was \$130 per capita as compared with \$37 for the United States. Though some of the increase was due to rising prices, yet the general average of prices was lower than in 1907. Exceptions to this existed in the case of cotton and rubber, which articles caused 80 per cent. of the increase in the value of imports over 1909. The greatest increases in exports were shown by cotton goods, woolen goods, iron and steel products.

**FAILURES.** Kemp's *Commercial Gazette* gave the total number of failures in the United Kingdom in 1910 as 9054; this may be compared with

9389 in 1909; 10,196 in 1908; and 9606 in 1907. The following trades showed the greatest number of failures: building and timber, 961; wine, spirits, beer and tobacco, 527; drapery, silk and woolen, 1074; groceries and provisions, 2060; corn, cattle and seed, 453; jewelry, 403; leather and coach, 434; hardware and metal, 355; merchants, brokers and agents, 348.

**GERMANY.** Financial and industrial conditions were in general somewhat better than in 1909. Nearly all lines of trade showed rather steady improvement. The iron and steel companies had larger output than in either of the two years preceding, and most of them raised their dividends. Iron and steel exports were unusually heavy. Coal prices were lower, and profits of coal companies were reduced. All lines of textiles showed advances; the cotton industry, however, as in England and the United States, suffered from high prices of raw material, but revived in the later months. The total exports for the first ten months were larger by \$189,000,000 than in 1909 and imports were larger by \$16,500,000, total exports being 1,451,000,000 and total imports, \$1,877,000,000. On this basis the net gold imports increased nearly \$60,000,000 during the same period. The stock market at Berlin reflected the movement of the Wall Street exchange. Prices reached their lowest level in June at the time of a very serious break in American securities' prices. While an unusual amount of money was invested in American stocks and bonds as in the preceding year, there was nevertheless a growing opposition to the tendency of German capital to engage in American undertakings.

**FINLAND.** A grand duchy on the Gulf of Bothnia; a part of the Russian Empire. Capital, Helsingfors.

**AREA AND POPULATION.** Total land area, 125,784 square miles. Of the total area (144,255 square miles), 11.15 per cent. is under lakes. Population (estimate, January 1, 1908, by the Russian Central Statistical Committee), 2,968,600. Births (1907), 92,457; deaths, 53,028; still-births, 2181; marriages, 20,266; emigrants, 16,296. Helsingfors had (1907), with Sveaborg, 130,844 inhabitants; Abo, 46,637; Tampere, 43,696; Viborg, 33,175.

**EDUCATION.** A relatively high standard of education is maintained, and except along the Russian border there is very little illiteracy. Primary instruction is compulsory between the ages of seven and fifteen, and the schools are well attended. Secondary education is provided in the lyceums, realschools, and country high-schools, also well attended by both sexes. There are special schools, and a university at Helsingfors. The Russification of Finnish schools, newspapers, and societies is one of the objects of the "Imperial Legislation Law" of June 30, 1910. The Finns are Lutherans.

**PRODUCTION.** The leading crops in 1907 were, in hectolitres; oats, 7,274,518; rye, 3,887,703; barley, 1,805,730; wheat, 49,287; potatoes, 6,612,665; flax, 1026 tons; hemp, 335 tons. Live-stock (1907): 327,817 horses; 1,491,264 cattle; 904,444 sheep; 221,072 swine; 133,749 reindeer; 6279 goats. Area under crown forests (1907), 12,827,164 hectares; revenue, 9,898,316 marks; expenditure, 1,678,162 marks. Saw mills, 608; employes, 25,821; output, 3,101,415 cubic metres of timber. Output of iron ore in 1907, 33,108 metric tons; pig iron, 15,100; bar iron, 26,388. Manufactories of all kinds (1907), 9269; ag-

gregate number of workers, 135,415; aggregate value of products (exclusive of flour-mills), 513,648,026 marks.

**COMMERCE.** The trade for four years is given below in thousands of marks (1 mark=19.3 cents):

	1906	1907	1908	1909
Imports .....	313,895	379,056	363,540	387,100
Exports .....	280,114	267,237	245,044	257,100

Principal articles of special trade (in thousands of marks):

Imports	1000 mk.	Exports	1000 mk.
Cereals .....	88,800	Timber .....	133,400
Machinery .....	20,000	Paper, etc. ....	42,500
Minerals .....	18,100	Butter .....	29,400
Iron, etc. ....	17,200	Skins, etc. ....	9,200
Sugar .....	16,800	Fish .....	5,000
Coffee .....	15,800	Woolen goods...	4,800
Cotton .....	15,000	Cottons .....	4,700
Chem. prods. ....	10,800	Iron .....	2,400

Vessels entered (1909), 9126, of 2,708,089 tons; cleared, 8671, of 2,573,132.

**COMMUNICATIONS.** Length of railways in operation in January, 1910, 3559 kilometres (largely state-owned). Revenue (state railways) in 1907, 39,595,000 marks; expenditure, 33,469,000; cost to end of 1907, 346,584,000. Vessels plying the canals (1908), 45,273; receipts from canal traffic, 925,971 marks; expenditure, 545,011. Post-offices, 1954.

**FINANCE.** Finland has its own financial and customs system. The unit of value is the mark, worth 19.3 cents. The revenue and expenditure for three years are given below:

	1907	1908	1909
Revenue .....	134,882,249	160,507,038	185,053,833a
Expenditure .....	130,340,191	167,993,796	177,650,169b

(a) State enterprises, 56,261,543 marks; indirect taxes, 60,898,897; direct taxes, 6,371,849; extraordinary, 41,464,567.

(b) Communications, 44,324,630 marks; worship and instruction, 17,148,981; civil administration, 13,149,342; extraordinary, 54,889,983.

Debt, January 1, 1910, 179,704,110 marks. Savings banks (December 31, 1907), 327; depositors, 253,517; deposits, 193,439,505 marks.

**GOVERNMENT.** The Russian Czar is the grand duke of Finland. He summons and may dissolve the Diet—a unicameral body, chosen by direct proportional election, both sexes being eligible to vote. The Diet, unless dissolved, lasts for three years; it has theoretically the power to legislate in matters not affecting fundamental laws nor the organization of land and sea defense. The "Imperial Legislation Law," enacted June 30, 1910, deprives the Diet of its right to pass upon Finnish questions involving imperial interests, and includes among such questions the imposition of taxes, police direction, school management, the authorization of public meetings, and the control of the periodical press. (See below under *History*.) The governor-general (1910, Lieut.-Gen. F. A. Seyn), and the Russian secretary of state for Finland (1910, Lieut.-Gen. A. Langhoff), are the head of the executive, and are responsible to the Czar and, theoretically, to the Diet. President of the Diet in 1910, P. E. Svinhufvud.

## HISTORY

**A PLEA FOR FINLAND.** In March, 1910, the arguments on behalf of Finland against the Russian Imperial design of abrogating her constitutional rights was set forth in a meeting of leading authorities in international law, publicists and professors of jurisprudence; held at the house of Professor Westlake in London. They issued the following statement:

"(1) The rights of Finland in respect to her Constitution are not a figment of Finnish 'imagination,' but an historical reality; they do not form a 'dogma' in which the Finlanders believe without being able to offer proof, but a judicial truth scientifically demonstrated.

(2) It is not only from Sweden, under the Treaty of Fredrikshamn (Article IV), but, as was recognized by the same document (Article VI), before this treaty, from the Finlanders themselves, that Alexander I, on his solemn promise to them to respect their Fundamental Laws, took possession of Finland.

(3) When, at the Diet of Borgo, the Oath of the four Estates followed on the promises of the Czar, Finland "free as regards her internal affairs," "from henceforth placed in the rank of nations," did not enter into the Russian Empire as a conquered province, precariously endowed with temporary privileges, but as an autonomous organism, united by free agreement to a sovereign state which, on account of this agreement, is obliged to respect this autonomy.

(4) In whatever fashion authors analyze and define the tie between Finland and Russia, according to their conception of a state and their different modes of classifying institutions of public law, they are, with very few exceptions, all agreed, Russians included, on this point, that Finland has the right to demand that the Russian Empire should respect her Constitution.

(5) The introduction in Russia of a constitutional system could not modify the position of Finland.

It cannot be said, from a practical point of view, that the autonomy of Finland, arising from a difference of governmental systems, autocratic in Russia, constitutional in Finland, has no longer any reason for its existence now that absolutism has ceased in Russia. Finland, whose political education is more ancient, and whose national civilization is different from that of Russia, requires her liberty, already greater and always "inherent in her customs"; moreover, Alexander I and his successors have not merely guaranteed in perpetuity to the Finlanders their individual liberties, but in order to sustain and vivify these they have guaranteed to Finland the liberty of her people.

Again, it cannot be said, *de jure*, that after the new Russian Fundamental Laws of 1906 (Article I) Finland, instead of being a part of the Russian Empire (Finland and Russia), is only a part of the Empire of Russia; that in virtue of these same laws (Article 2), the Diet has not the right to legislate on all internal questions, but only on such of these questions as do not touch the interests of Russia—interests of which Russia is the sole judge; and that in the case of a conflict between the new Constitution of Sovereign Russia and the old Constitution of non-Sovereign Finland, it is the first which ought to prevail. The Czar, in limiting his rights as regards Russia, could not increase them as regards Finland; no one can create a

right for himself; being unable to withdraw from the Diet the right to legislate, he could not transfer from the Diet to the Duma all, or any part, of this right; no one can give to another more than he possesses.

(6) Being unable, by direct means, to withdraw either from the Diet or from the Finnish administrative organs all or any part of their powers, Russia cannot do so by indirect means through reserving to herself the right to determine the scope of this competence.

(7) If the superior interests of the Empire demand the establishment of a common procedure for dealing with certain internal affairs, it pertains to the Diet either itself to determine those affairs or to consent to the creation of a body charged with determining them."

**FINLAND'S OPPOSITION.** The Russo-Finnish Commission on the relations of Finland to the Empire had decided in December, 1909, by a vote of 65 strictly according to nationality, that Finland should be reduced to a status of provincial autonomy and should send five representatives to the Duma and one to the Council. In the elections of February, 1910, the Old Finn party, which favored compromise with Russia, lost six seats and the Agrarians and Socialists had a clear majority. According to the returns the parties in the new Diet were distributed as follows: Old Finns, 42; Young Finns, 28; Swedish People's Party, 26; Social Democrats, 86; Agrarians, 17; Christian Labor, 1. Fifteen women were elected. The Diet was opened on March 1. A Russo-Finnish bill, carrying out the principle approved by the Russo-Finnish Commission was brought into the Imperial Duma and it was also laid before the Finnish Diet. The debate on the bill in the Diet brought out much criticism on the Czar's attitude towards Finland, members characterizing it as an outrage on civilization. At the beginning of April the Diet unanimously voted it into committee for drafting a reply to the effect that the measure was unconstitutional. On account of his protests against the attempt to violate the constitution, M. Charpentier, Procurator of the Finnish Senate, was dismissed. In the Imperial Duma the Russo-Finnish bill, known as the "Imperial Legislation Law," was carried on June 30. On August 5 the Peace Congress at Stockholm unanimously passed a resolution declaring that the treaties on which Russo-Finnish relations rested recognize Finland as a nation and hoping that Russia would restore these treaty rights. On September 14, the Czar called an extraordinary session of the Finnish Diet, which was opened on September 17. The proposal laid before it was that it should conform to the new Imperial law of June 30, 1910, by electing representatives to the Russian Parliament and by declaring its opinion on two legislative proposals drafted by the Russian Council of Ministers and subsequently to be submitted to the Russian Chambers. On September 23 the Diet rejected the proposal unanimously. The Czar dissolved the Diet and appointed January 2 for the next elections. The attitude of the opponents to the measure as set forth by a member of the Diet was that acceptance of the law would mean abandonment of Finland's separate constitutional existence. While the Diet acknowledged that there were matters open to question and declared that it would coöperate toward their settlement, it did not believe that Russian Imperial interests required the suppression of Finland's in-

dependence in internal administration and legislation. Hitherto questions bearing on the common interests of the two countries, as for example their commercial relations, had been regulated by identical Russian and Finnish laws. There were no grounds for this violation of the treaties and for this suppression of Finnish liberties. The difficulty with Russia caused the resignation of four governors and in November the governor of the Viborg District was dismissed for non-compliance with Russian demands. For further details see the article on RUSSIA, paragraphs on *History*.

**FIRE ENGINES.** See FIRE PROTECTION.

**FIRE INSURANCE.** See FIRE PROTECTION and INSURANCE.

**FIRE LOSSES AND WASTE.** See FIRE PROTECTION.

**FIRE PROTECTION.** During the year the New York Fire Department definitely decided to commence putting its apparatus on an automobile basis. Contracts were let for the construction of six motor-driven hose wagons for use in the high pressure district to carry the strong, heavy hose required for use with the high pressure mains. These wagons were in the main counterparts of one successfully used for two years with the first high pressure hose company, carrying forty-five 50-foot lengths of 3-inch hose in addition to the crew of from eight to twelve men and the ordinary tools and adjuncts. They were to be capable of an extreme speed of 40 miles an hour, but this would be rarely if ever needed. At the same time the New York Fire Department prepared specifications for an electrically driven motor extension ladder truck where a gasoline engine was connected with a dynamo from which current was derived for a motor at each wheel, the steering and control of the motor being done by the driver, while a tillerman over the rear wheels assisted in turning sharp corners. A contract was also let for building a second-size steam fire engine with an automobile chassis in place of the front wheels, poles, etc., used with horses. A few months previously an engine had been rebuilt in this way largely as an experiment and its success warranted the New York Fire Department in making a contract for the transformation of one of its standard fire engines. This in no way interfered with the steam engine and its pumping mechanism, but merely substitutes gasoline motors for the horse, giving a six wheeled vehicle in place of one with four wheels. As further demonstrating the tendency of the New York Fire Department to install motor apparatus it may be said that towards the end of the year several contracts were awarded for combination engines for use in the suburbs. In these engines the driving mechanism could be uncoupled from the motors and the pumping machinery thrown into gear. The specifications of the New York Fire Department were very rigorous, but so many of these machines were in use during the year that a number of manufacturers were willing to bid on their construction.

**HIGH PRESSURE.** During the year the high pressure system was extended on the borders of the original high pressure district. Late in December it was announced by Fire Commissioner Waldo that a fire college would be started at fire headquarters to give practical instruction to various members of the department both officers and firemen. It was thought in this way that the already high standard of efficiency of

the New York Fire Department would be materially raised, especially on its technical side.

In many other places than New York the introduction of motor apparatus has taken place and new automobile hose and combination wagons are to be found not only in cities, but in suburban towns and villages, many efficient machines being constructed and practically all the large makers of fire apparatus were actually turning out gasoline machines. The age of the horse had passed so far as fire apparatus was concerned and greater economy and speed of operation were everywhere secured.

**A DIRECT FIRE ALARM SYSTEM.** Another interesting development among the many progressive ideas introduced into the New York Fire Department during the year was the proposed reorganization of the fire alarm system which for many years has been obsolete and of low efficiency, though in actual operation worked with considerable success and skill by the telegraph bureau. A new system being required, J. C. Rennard, the electrical engineer of the department, proposed a direct circuit system with paper insulated cables in which a pair of conductors would run from each separate box to the central station which it was proposed to erect in one of the city parks where it would be absolutely safe from any conflagration risk. Such a system would require only the simplest form of alarm boxes and would be more economical to install and maintain than the best non-interfering successive circuit systems which were thought would be less efficient.

These various improvements in New York concerned fire departments throughout the United States, as the innovations introduced or projected were all most radical.

**INSURANCE INVESTIGATION.** During the year a committee from the legislature of the State of New York, appointed to investigate the various conditions alleged as to corruption and other attempts to influence legislation, investigated the question of fire insurance. A number of hearings were held at which much testimony was presented and data and statistics in the records of fire rates and similar technical details were recorded in addition to much information relating to the business practices of the insurance companies, their exchanges and agents. See NEW YORK.

**FIRE WASTE IN THE UNITED STATES.** During the year many attempts were made to make effective the lessons of the enormous fire losses in the United States. The United States Geological Survey published Bulletin 418: *The Fire Tax and Waste of Structural Materials in the United States*, by Herbert M. Wilson and John L. Cochrane, in which were compiled statistics showing the unenviable record of the United States, as compared with Europe. It was here pointed out that the annual loss by fire in the United States is \$456,486,151, of which amount \$215,084,700 represents the total loss by fire, while \$241,401,442 represents the annual expense of fire protection, included in this being the excess premiums over insurance paid, annual expense of water works chargeable to fire service, annual expense of fire departments and annual expense of private fire protection. Were American buildings as nearly fire-proof as those of Europe, this amount would be reduced to \$90,000,000 and an annual saving of money amounting to \$366,000,000 or nearly enough to build a Panama Canal would be effected.

**FIRE LOSSES IN THE UNITED STATES AND CANADA.** The losses by fire in the United States and Canada in the year 1910 showed a marked increase over the figures of the preceding year. The statistics of the *New York Journal of Commerce and Commercial Bulletin* gave for 1910 an aggregate loss of \$234,470,650, as compared with \$203,649,150 in 1909. The increase in the total losses during 1910 was in large manner caused by the protracted drought during the summer as during the first half of 1910 the aggregate losses were less than during the same period of 1909. The forest fires during the late summer months were productive of large fire waste, but in addition there was a continued and widespread destruction of property which can not be explained by the extraordinary climatic conditions of the year. The following table gives the losses by months during 1908, 1909 and 1910:

	1908	1909	1910
January .....	\$29,582,000	\$22,735,000	\$15,175,400
February .....	18,489,700	16,131,000	15,489,350
March .....	16,728,300	13,795,400	18,465,550
April .....	26,009,000	19,345,200	18,071,800
May .....	15,181,150	17,360,400	18,823,200
June .....	19,512,000	14,435,900	13,183,600
July .....	15,323,750	15,830,900	26,847,900
August .....	23,123,000	16,423,000	21,570,550
September .....	21,431,400	15,043,000	11,700,000
October .....	22,722,850	17,765,200	37,188,300
November .....	15,834,350	14,808,550	16,407,000
December .....	14,629,750	19,975,500	21,528,000
Total .....	\$238,562,250	\$203,649,150	\$224,470,650

There were during the year 1910 no less than 3225 fires where the loss in each instance reached or exceeded \$10,000. While this is somewhat smaller than the number of fires over that sum reported during 1910, or in fact any of the four preceding years, it is interesting to note that the fires of larger destructiveness have steadily increased in number, probably due in a measure to the concentration of values in an individual risk.

The fire losses in the United States and Canada during the thirty-four years aggregate \$4,947,008,175, ending with 1910, or an annual average of \$145,500,240. There has been a steady increase in the country's fire waste at a ratio far in excess of the normal ratio of increase in the country's wealth:

1910.....	\$234,470,650	1904.....	252,554,050
1909.....	203,649,200	1903.....	156,195,700
1908.....	238,562,250	1902.....	149,260,850
1907.....	215,671,250	1901.....	164,347,450
1906.....	459,710,000	1900.....	163,362,250
1905.....	176,198,800		

There were no large conflagrations during the year 1910 unless forest fires in the northwest may be considered as one continuous fire. A general conflagration at Campbellton, N. B., in July, destroyed property valued at \$3,500,000. There were during the year some 36 fires which caused a property loss of \$500,000 or over. These fires were as follows:

Location and description.	Estl. loss.
N. Y. City, United States Army Depot....	\$ 500,000
Pueblo, Colo., steel works pattern shop...	600,000
Winlock, Wash., business portion of town.	650,000
Hambleton, W. Va., tannery.....	800,000
Philadelphia, Pa., oil warehouse, mantel factory and other.....	600,000
Omaha, Neb., flour mill and elevator.....	600,000

Beaver Falls, Pa., steel works and type-writer factory.....	500,000
St. Louis, Mo., brewery plant.....	530,000
Ford City, Pa., plate glass works.....	1,500,000
Kansas City, Kan., soap factory and other .....	1,500,000
Elkhart, Ind., band instrument factory..	500,000
Bluff Point, N. Y., summer hotel.....	500,000
Minneapolis, Minn., implement warehouse and other.....	1,000,000
Paterson, N. J., furniture store and other.	502,000
Arnprior, Ont., lumber yards.....	1,000,000
Marmette, Wis., timber lands and saw-mills .....	1,200,000
Campbellton, N. B., conflagration.....	3,500,000
N. Y. city, steamship pier and freight....	750,000
Lakeview, Ill., grain elevator and brewery	600,000
Boston, Mass., lumber yard and other...	600,000
Jersey City, N. J., cork works and other..	700,000
Wallace, Idaho, half the town.....	1,000,000
Stevenson, Wash., sawmill and lumber..	600,000
James City, Pa., plate glass works.....	500,000
East St. Louis, Ill., railroad freight house	500,000
Superior, Wis., coal shed and wharf.....	500,000
Victoria, B. C., department store and other .....	1,000,000
Topeka, Kan., railroad storage yard.....	500,000
Omaha, Neb., creamery and cold storage plant .....	600,000
Philadelphia, Pa., business block and storage warehouse.....	500,000
Winnipeg, Man., wholesale drug house..	515,000
Livingston, Ala., lumber plant.....	500,000
Evansville, Ind., cigar factory and other..	750,000
Cincinnati, O., shoe factory and leather works .....	1,750,000
Chicago, Ill., meat packing plants.....	1,000,000
Bradwardine, Man., business portion of town .....	525,000

**FRITH, C. H.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**FISCHER, SYDNEY ARTHUR.** See CANADA, *Government and History*.

**FISCHER, THEOBALD.** A German geographer, died in October, 1910. He was born in Kirchsteitz in 1846 and was educated at the universities of Heidelberg, Halle, Bonn and Vienna. From 1879 to 1883 he was professor of geography at Kiel. In the latter year he took the same chair at Marburg. In 1886 he visited the Tunisian Sahara and two years later made a tour through Morocco and Algeria. His published writings include the following: *Raccolta dei mappemonde e carte nautiche del XIII. al XVI. secolo* (10 atlases containing 79 leaves, 1881); *Beiträge zur Geschichte der Erdkunde und der Kartographie in Italien im Mittelalter* (1886); "Die südeuropäischen Halbinseln," in Kirchhoff's *Unser Wissen von der Erde*, Vol. iii. (1892); and *La Penisola Italiana*.

**FISH AND FISHERIES.** The fiscal year of the United States Bureau of Fisheries ends on June 30 and the report for 1909 of the Commissioner of Fisheries appeared in June, 1910. It was reported that owing to greater economy of operation the work for the year had been carried on at less expense than in previous years, though more work had been done. Blueback and Chinook salmon had been successfully sent to New Zealand, a shipment in a previous year of rainbow trout having been entirely successful. Fish were sent also to Argentina, France, and Germany. The United States Fisheries Steamer *Albatross* returned to San Francisco in May, after a collecting trip extending over two and one-half years, in the region of the Philippine archipelago. Extensive collections were made, which have been distributed to specialists for study. According to this report the commissioner the quantity and value of the fish landed at Boston and Gloucester in the year 1908 were as follows:

	Lbs.	Value
Cod, fresh .....	41,615,277	\$1,042,683
Cod, salt .....	21,832,454	762,801
Cusk, fresh .....	5,066,499	88,726
Cusk, salt .....	140,772	3,531
Haddock, fresh .....	47,417,855	1,117,332
Haddock, salt .....	640,507	9,729
Hake, fresh .....	20,434,450	279,802
Hake, salt .....	122,442	1,833
Pollock, fresh .....	12,428,726	135,168
Pollock, salt .....	1,090,205	16,364
Hallbut, fresh .....	3,179,252	232,634
Hallbut, salt .....	946,558	66,263
Mackerel, fresh .....	5,507,820	308,594
Mackerel, salt .....	3,467,200	175,515
Herring, fresh .....	6,708,320	123,644
Herring, salt .....	8,587,396	136,590
Swordfish .....	1,357,854	119,633
Other fish, fresh .....	880,250	8,071
Other fish, salt .....	41,400	1,012

The Bureau of Fisheries has been investigating the catfishes of the United States, and a Bulletin on this subject appeared in 1910. These fish are omnivorous in their diet, but though they eat anything they can find, their flesh seems not to be at all injuriously affected by the character of the food. On account of their hardness they are excellent for artificial culture, and will thrive in all parts of the country. In the work of the Bureau of Fisheries the best results have been obtained with the "bull head" or yellow cat.

Louisiana was reported as potentially the equal of any State in its natural adaptability to oyster growing, and should develop a profitable industry in this line provided proper measures be taken to avoid overcrowding of beds, and that judicious measures of fishing be employed. Apparently freedom from the oyster borer may be had by planting in the fresher waters, a large amount of alkalinity favoring the growth of the borer.

The following table gives statistics of fisheries in each of the States according to a Federal census made for December 31, 1908:

The total value of the Alaskan fisheries for 1909 as reported in 1910 was \$11,181,388,000, mainly in the salmon fisheries, though cod, seal and whale fisheries were important.

It was reported during the year, that the experiment of shipping live fish in sealed cans in water charged with oxygen gas had been entirely successful. Fish were sent in this way from the United States to Germany, and a large percentage reached their destination in good condition.

The following table gives the production of the different kinds of fish in the United States and their value, according to a Federal census made for December 31, 1908:

	Pounds.	Value.
Products, total .....	1,893,548,200	\$54,030,630
Alewives .....	89,978,000	588,520
Black Bass .....	3,313,400	254,640
Bluefish .....	7,646,600	506,180
Buffalo .....	16,728,900	498,260
Carp, German .....	42,763,100	1,135,390
Catfish .....	18,386,900	792,830
Cod .....	109,452,600	2,902,880
Flounders .....	19,668,300	519,370
Haddock .....	59,987,400	1,308,500
Hake .....	34,372,100	464,530
Hallbut .....	34,441,600	1,562,020
Herring .....	165,317,100	1,759,230
Mackerel .....	12,679,400	861,140
Menhaden .....	394,776,400	893,010
Mullet .....	34,850,800	938,510
Perch .....	11,801,400	420,150
Pike perch .....	15,247,400	679,580
Pollock .....	29,462,000	401,850
Salmon .....	90,717,500	3,849,080
Sea Bass .....	7,689,100	325,610
Shad .....	27,641,100	2,113,400
Snapper .....	13,854,300	650,600
Squeteague or trout .....	60,555,700	2,534,120
Striped bass .....	3,666,200	315,010
Whitefish .....		
(includes caviar).....	8,190,300	530,440
Crabs .....	60,625,800	938,330
Lobsters .....	15,279,900	1,931,100
Shrimp .....	14,373,600	389,600
Clams .....	16,982,900	1,917,210
Mussel shells .....	81,868,700	692,390
Oysters .....	233,404,500	15,713,000
Scallops .....	2,414,100	317,190
Sponges .....	622,500	544,880
Whale products .....	4,198,900	504,590
Miscellaneous .....	151,089,700	4,877,490

\* Includes \$300,107 value of pearls and slugs.

State	Fishermen. Number	Vessels Number	Value, including outfit	Accessory property and cash capital Value	Products Value
United States .....	143,851	6,933	\$17,831,370	\$7,921,190	\$54,030,630
Alabama .....	972	61	130,130	81,600	387,220
Arkansas .....	998	6	8,110	13,150	207,170
California .....	4,129	60	578,320	91,300	1,969,730
Connecticut .....	2,147	248	994,330	1,085,520	2,981,720
Delaware .....	1,766	55	334,220	9,460	541,200
Florida .....	9,212	327	846,410	668,280	2,388,690
Georgia .....	2,525	88	89,530	185,000	700,960
Illinois .....	4,417	17	47,230	294,070	1,413,240
Indiana .....	986	2	7,700	22,390	223,150
Iowa .....	786	...	...	10,520	214,560
Kentucky .....	555	...	...	6,560	110,300
Louisiana .....	5,795	223	440,540	40,080	1,568,800
Maine .....	6,861	575	1,006,540	165,660	3,256,580
Maryland .....	18,392	1,107	1,000,780	86,040	3,308,670
Massachusetts .....	11,577	671	4,282,820	215,040	7,095,230
Michigan .....	3,472	110	327,230	598,590	1,473,050
Minnesota .....	934	4	16,050	32,680	191,950
Mississippi .....	2,037	206	372,430	46,240	556,170
Missouri .....	928	...	...	27,880	293,480
New Jersey .....	7,231	435	709,400	269,500	3,068,590
New York .....	6,775	643	1,749,960	1,412,600	4,693,700
North Carolina .....	9,681	299	281,840	369,530	1,776,020
Ohio .....	2,054	54	214,880	342,990	839,560
Oregon .....	4,772	44	140,410	64,750	1,356,460
Pennsylvania .....	1,250	66	254,300	87,100	513,110
Rhode Island .....	1,493	133	514,540	627,490	1,751,820
South Carolina .....	2,559	103	50,340	5,250	288,330
Tennessee .....	427	...	...	13,300	111,860
Texas .....	1,780	157	269,340	26,350	445,890
Virginia .....	20,066	946	1,332,100	433,550	4,715,740
Washington .....	4,954	190	1,593,560	309,230	3,513,240
Wisconsin .....	2,011	89	243,830	275,550	1,067,170
(1) .....	349	...	...	3,880	110,250

(1) Includes Kansas, Nebraska, New Hampshire, Oklahoma, South Dakota and West Virginia.

**FISHBERG, M. E.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**FISHER, H. A. L.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**FISHERIES AWARD.** See ARBITRATION, INTERNATIONAL.

**FISKE, MINNIE MADDERN.** See DRAMA.

**FITE, W.** See LITERATURE, ENGLISH AND AMERICAN, *Philosophy and Religion*.

**FITZGERALD, J. D.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**FITZGERALD, JOHN F.** See MASSACHUSETTS.

**FLAX.** Owing to dry weather in the principal flaxseed-producing States, Minnesota and the Dakotas, the yield of this product in 1910 was not large enough to cover home consumption. Although an area of 2,916,000 acres was devoted to flax the production amounted to only 14,116,000 bushels, and the average yield per acre to only 4.8 bushels. In 1909 25,856,000 bushels were produced on 2,742,000 acres, the average yield per acre being 9.4 bushels. The flaxseed production of the United States is limited practically to ten States, in which the acreage ranges from about 5000 to 1,500,000. The acreage and production of the leading States in 1910 was as follows: North Dakota, 5,778,000 bushels on 1,605,000 acres; Minnesota, 3,540,000 bushels on 472,000 acres, South Dakota, 3,300,000 bushels on 600,000 acres, and Montana, 420,000 bushels on 60,000 acres. The average yield per acre in these States was 3.6, 7.5, 5, and 7 bushels respectively. The highest acreage yield for the year was produced in Iowa, where it reached 12.2 bushels per acre. For the year ending June 30, 1910, the United States exported about 65,000 bushels of flaxseed and about 650,000,000 pounds of oil cake and meal. The annual flaxseed production of the world amounts to 100,000,000 bushels approximately. The yield in countries other than the United States was about normal, although in parts of Argentina the production was also reduced through drought. The world's flax-fibre crop, which amounts annually to about 2 billion pounds, came up to the average this year.

**FLICK, A. C.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**FLINDERS PETRIE, W. M.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**FLINT, ROBERT.** A Scotch theologian, died November 26, 1910. He was born in Dumfriesshire in 1834 and at a very early age entered the University of Glasgow. In 1858 he was licensed to preach and in the following year was called to the East Church, Aberdeen, from which he was transferred in 1862 to the country parish of Kilconquhar. Here amid quiet surroundings he lived the life of a student, laying the foundation of the immense erudition for which his writings are notable. In 1864 he was elected to the chair of moral philosophy in the University of St. Andrews. This position he held for twelve years, when, in 1876, he was transferred to the chair of divinity in the University of Edinburgh. In 1874 he edited his first important work, *The Philosophy of History in France and Germany*. In 1903 he resigned his University chair in order to devote himself entirely to literary work. Professor Flint ranks high as a philosopher as well as a theologian. As a defense of the fundamental doctrines of theism his writings have long occupied an authoritative position, while his exhaustive labors in philos-

ophy and history have been honored by the learned societies of Europe and America. Among his published writings are: *Christ's Kingdom on Earth* (1865); *Theism* (1877); *Anti-Theistic Theories* (1879); *Historical Philosophy in France* (1894); *Socialism* (1894); *Sermons and Addresses* (1899); *Agnosticism* (1903). He also contributed to the Encyclopædia Britannica and other encyclopædias and to various periodicals. In 1880 he was Stone Lecturer at Princeton University.

**FLOATING DOCKS.** See DOCKS AND HARBORS.

**FLORIDA.** The southernmost State of the American Union. It has an area of 56,666 square miles, of which 3085 square miles are water. The capital is Tallahassee.

**POPULATION.** The population of the State in 1910 according to the Thirteenth Census was 752,619, as compared with 528,542 in 1900 and 391,422 in 1890. The increase during the decade 1900 to 1910 was 42.4 per cent. The State ranks thirty-third in point of population, the same relative rank which it occupied in 1900. The population of the larger cities and towns will be found in the tables in the article CENSUS.

**MINERAL PRODUCTION.** The chief mineral product of the State is phosphate. The latest available statistics of production are those of 1908, when there was produced 1,692,102 long tons of phosphate rock, valued at \$8,484,539. The first shipment of pebble phosphate was made in 1888 from which date the industry has greatly grown. The production has shown an increase almost without exception each year since its beginning. The State produces also considerable quantities of clay products, mineral water and road making materials. The value of the mineral products in 1908 was \$9,167,762.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909 and 1910 are shown in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	678,000	8,814,000	\$7,492,000
1909.....	665,000	8,379,000	6,955,000
Oats, 1910.....	31,000	602,000	326,000
1909.....	31,000	527,000	395,000
Rice, 1910.....	900	19,000	14,000
1909.....	1,000	25,000	20,000
Potatoes, 1910.....	6,000	540,000	540,000
1909.....	5,000	475,000	570,000
Hay, 1910.....	19,000	25,000a	425,000
1909.....	19,000	26,000	390,000
Tobacco, 1910.....	3,500	2,380,000b	547,400
1909.....	4,500	3,195,000	1,086,000
Cotton, 1910.....		58,000c	
1909.....		54,011	

a Tons. b Pounds. c Bales.

**EDUCATION.** The total school population of the State in 1910, as estimated from the census of 1905, was 241,650, of whom 136,773 were white and 104,877 were colored. The total enrollment in the State in the school year 1909-10 was 148,089. Of these 92,834 were white and 55,255 were colored. The average daily attendance was 103,892, of whom 63,243 were white and 40,649 were colored. The teachers employed in the schools of the State numbered 4015, of whom 3041 were white and 974 were colored. The average monthly salary paid to male white teachers was \$88.13 and to female white teachers, \$55.80. The average salary of male negro teachers was \$33.68 and of female negro teachers, \$30.18. The total expenditure of public school funds in 1910 was \$1,773,388. The value of the school property in the State was \$2,311,-

469. An aggressive campaign was carried on in 1909-10 in the interest of education in the State. This resulted in the establishment of 150 school improvement associations, with a total membership of more than 10,000. Each member of this association is pledged to use his influence for the passage of a compulsory education law, the establishment of at least one high school in each county and a constitutional amendment of a one mill tax.

**FINANCE.** There was a balance in the State treasury on January 1, 1909, of \$268,106. The total receipts for the year ending December 31, 1909, amounted to \$1,178,766. The total disbursements for the year amounted to \$1,007,328, leaving a balance on January 1, 1910, of \$171,438. The chief sources of revenue are from taxation, general license tax, insurance company premium tax, the sale of fertilizer stamps and the corporation charter tax. The chief disbursements were for education, maintenance of the State institutions and legislative and executive expenses. The public debt of the State consists solely of refunded bonds amounting to \$601,567, bearing interest at the rate of 3 per cent., all of which are held by the education funds of the State.

#### POLITICS AND GOVERNMENT

There was no meeting of the State legislature in 1910 as the meetings are biennial and the last was held in 1909. The next session begins April 4, 1911.

**ELECTIONS.** Primary elections for candidates for the Senate were held on May 9. The contestants were Senator Taliaferro, who sought re-nomination, and N. B. Broward, former governor of the State. A third candidate was Claude L'Engle. Senator Taliaferro did not have a majority over Broward and L'Engle, and under the Florida law a second primary was necessary. This was held on June 7 and resulted in the defeat of Senator Taliaferro by Mr. Broward. The latter, however, died before he could take his place in the Senate. In the senatorial primaries the corporation question figured largely, Mr. Broward charging that Senator Taliaferro was the choice of and had acted as the agent in the Senate of corporation interests. In the first primary on May 9, nominations were also made for Congressmen. Congressman Sparkman of the First District had no opposition and was therefore nominated. Congressman Clark of the Second District and Congressman Mays of the Third District were also renominated. Mr. Clark was opposed by Louis Zim, representing organized labor, but the latter polled only a small vote.

On account of the death of Mr. Broward it was necessary to hold another primary election for Senator, and arrangements were made for such an election to be held on January 10, 1911. There were three candidates, W. A. Blount, John N. C. Stockton, and Nathan P. Bryan. Senator Taliaferro was not a candidate for re-election. On account of the provisions of the Florida law mentioned above, there was such a certainty that none of these candidates would receive the majority of the votes that still another primary election was planned for January 31. This election would constitute the sixth primary contest for the selection of a United States Senator within two years.

**STATE OFFICERS.** Governor, Albert W. Gilchrist; Secretary of State, H. C. Crawford; Treasurer, W. V. Knott; Comptroller, A. C.

Groom; Attorney-General, Park M. Trammell; Auditor, Ernest Amos; Adjutant-General, J. C. R. Foster; Superintendent of Public Instruction, W. M. Holloway; Commissioner of Agriculture, B. E. McLin—all Democrats.

**JUDICIARY.** Supreme Court: Chief Justice, J. B. Whitfield; Justices, W. A. Hocker, R. F. Taylor, T. M. Shackelford, Chas. B. Parkhill and R. S. Cockrell; Clerk, Milton H. Mabry—all Democrats.

**STATE LEGISLATURE, 1911.** The legislature is: Senate, Democrats, 32; House, Democrats, 70.

**FLUORINE.** See **ATOMIC WEIGHTS.**

**FLYING.** See **AERONAUTICS.**

**FLYNN, JOSEPH MICHAEL.** An American Roman Catholic priest, died January 5, 1910. He was born in Springfield, Mass., in 1848. His parents moved to Newark, N. J., where he was sent to the parochial school at St. Patrick's Cathedral. In 1861 he entered a printing office in that city, and in 1864 enlisted in the 37th New Jersey Volunteers. He served throughout the Civil War and received a medal of honor from Congress for bravery. In 1865 he entered St. Charles College, and in 1870 graduated from Seton Hall College. Following his graduation he entered the seminary of that college. He was ordained a priest in 1874. He successively filled the offices of diocesan chancellor, pastor of ceremonies and secretary of investigation of St. Patrick's, Newark, N. J., and for one year administered the parish. He was afterwards pastor of St. Mary's, Morristown. He was made a monsignor in 1904.

**FONSECA, HERMES DA.** A Brazilian public official, inaugurated on November 15 President of the Republic. He was born in 1855, and entered the army as a cadet at the age of 16. He was commissioned five years later lieutenant of artillery, and thence rose through all grades of the army to be Marshal of Brazil. During the previous administration he was Minister of War until he resigned prior to his election as President. He is considered the foremost military authority in South America. President da Fonseca has always manifested a friendly disposition toward the United States. He has repeatedly expressed himself as in favor of closer relations with that country rather than with Europe. One of his favorite projects is the establishment of a Pan-American bank.

**FOOD AND DRUGS ACT.** See **FOOD AND NUTRITION.**

**FOOD AND NUTRITION.** **FOOD INSPECTION.** The Federal Food and Drugs act of 1906 continued to receive vigorous enforcement. A total of 990 cases as regards interstate commerce was reported for prosecution, 496 more than in the year preceding. Fines aggregating \$11,049.31 were collected and 175 shipments were condemned and forfeited as adulterated and misbranded. Of 95,482 samples of imported foods and drugs examined, approximately 3000 were found to be illegal. The scope of the inspection of both imported and domestic goods was further extended, as regards imported goods, by a further systematizing of their examination at the smaller ports of entry, and as regards domestic products by a closer inspection of factories.

During the four years since the law went into operation, it has been a subject of great public interest. In the working out of the details of its enforcement criticism has been inevitable. This has been of two kinds, that which aimed to discredit the law because of selfish motives, and

criticism based on the interpretation of the law which has made it partially inoperative, as in the case of the whisky decision. The public has generally regarded the campaign for pure foods and drugs and the stamping out of frauds as involving a great moral issue, and has looked with disapproval upon any steps which would tend to nullify or restrict the law. Already much has been accomplished. Certain forms of adulteration formerly very common, such as the mixture of other oils with olive oil and its sale as the pure product, have now become rare. Cheeses made from skim milk are now generally properly labeled, and the use of boric and salicylic acid as preservatives has been practically driven from the trade. The law has afforded helpful protection to honest manufacturers and dealers desirous of handling only unsophisticated goods. The most important legal cases affecting goods entering into interstate traffic dealt with the bleaching of flour with nitrogen peroxide. It was the contention of the government that this practice enabled the substitution of inferior flours for more expensive grades, and was also objectionable in that the nitrites introduced were poisonous and deleterious to health. Large commercial interests were involved, including milling companies and manufacturers of milling machinery. Several test cases came to trial, in all of which decisions were rendered favorable to the government. Another important series of cases related to interstate traffic in desiccated and frozen egg products, which have been used exclusively in recent years in foods sold in cooked form. As a result of factory inspection and the examination of interstate shipments, a large number of prosecutions were instituted, and several tons of these products destroyed because of their contaminated and filthy nature. The chief violations as regards drug products were for misrepresentation of their composition and curative properties. In many cases goods sold as headache remedies, cough reliefs, cancer and consumption cures, and even drug-addiction cures, and in some instances as medicated soft drinks, were found to contain dangerous habit-forming drugs. Fraud orders prohibiting the use of the mails were issued against many of these so-called "cures." As a result of studies of the influence of tin receptacles on the composition of canned goods, a decision by the board of food and drug inspection was announced restricting the content of tin salts allowed in foods canned after January 1, 1911. Other important decisions of the year dealt with the labeling of whiskies and yeasts, the floating of shell-fish, the restriction of the use of geographical names to products from these localities, and the use of artificial dyes. See MEAT AND MEAT INSPECTION.

**FOOD CONTROL IN THE STATES AND IN FOREIGN COUNTRIES.** Interest in pure food control through State and municipal agencies was also strongly sustained, Maryland put in operation a food and drug law and Vermont a new weights and measures law. Whereas in 1905 only 25 States and Territories possessed effective laws and were enforcing them, Mississippi is to-day the only State with no pure food law, and there are three others, Arkansas, Montana, and West Virginia, in which the laws are rendered inoperative by a lack of State appropriations and effective machinery for their enforcement. In foreign countries little additional legislation was enacted, but there was a general tendency toward

the more rigid enforcement of existing laws. A comprehensive meat inspection law went into effect in Uruguay. France strengthened its laws as to the adulteration of edible fats and oils and of wines, and a decree governing imported liquors and canned goods was promulgated in the Republic of Salvador.

**COST OF FOOD.** Despite the high price levels reached by food products, as of most other commodities, during 1909, there were still further advances during 1910 in most civilized countries, and in the United States retail prices reached the highest point for many years. For instance, as compared with 1900, bacon was more than 70 per cent. higher, ham about 33 per cent. higher, flour 50 per cent. higher, butter 45 per cent. higher, sugar 12 per cent. higher, and eggs 100 per cent. higher. A few articles, such as coffee and tea, remained at the same level, but practically nothing was lower. In the case of cereals and other products sold in packages, the increase commonly took the form of a reduction in the size of the package. Widespread agitation resulted from this situation, the feeling being particularly strong as regards the prices of meats. In several of the larger cities so-called "meat boycotts" were organized with the object of compelling a reduction in prices through the curtailment of the consumption of meat, but these movements were too sporadic and localized to produce more than temporary relief.

**OFFICIAL INQUIRIES INTO COST OF LIVING.** In response to the popular demand for a knowledge of causes, a select committee on wages and prices of commodities was organized in the United States Senate, February 9, and a commission on the cost of living was appointed February 28 in the State of Massachusetts. Both of these bodies held extended hearings and devoted much of their attention to the cost of food. The Senate committee divided in its findings along party lines. Among the causes assigned by the Republican majority for the advance in prices were the increased cost of production of farm products through higher land values and wages; the shifting of population from food-producing to food-consuming occupations and localities, and immigration to the latter; the reduced fertility of the land; increased banking facilities in agricultural localities; the operation of cold storage plants; increased cost of distribution; industrial combinations, including dealers' organizations; the increased use of advertising; the increased money supply; overcapitalization; and the higher standard of living. The Democratic minority concurred as to the operation of some of these factors, but enumerated as the three principal causes the protective tariff, the formation of trusts and monopolies, and the increased money supply. Both parties united in recommending federal legislation limiting the time in which perishable foods may be held in cold storage, in the belief that such action would tend toward an equalization of prices and also for hygienic reasons. A bill along this line was pending at the close of the year.

The Massachusetts commission rendered an extended report, in which the primary cause of the general advance in prices was deemed to be the increase of the gold supply, but considerable importance was ascribed to uneconomic methods of producing, distributing and using food. Among these causes were the drain of population

from the land with the consequent increase of non-producing consumers, the use of highly-advertised and proportionately expensive package goods, the multiplication of small retail stores, and the growth of the costly delivery system.

**COST OF FARM PRODUCTS.** In spite of the admitted increase in retail prices, investigations reported by the Secretary of Agriculture indicated that the farmers' share of the retail price is no larger than ten years ago, and is perhaps fifty cents of the consumer's dollar. Other investigations indicated that for many products, notably fruit and vegetables, it is often not more than from thirty to forty cents. A remedy suggested was the more complete elimination of the middleman through the direct purchase of certain farm products, coöperative associations of farmers selling by direct consignment to similar associations of consumers in cities. This plan is already in operation to some extent in England, where, however, a parcels-posts system is available. See AGRICULTURE.

**GENERAL CAUSES.** As already pointed out, the high cost of food was by no means merely an American problem, but was virtually of world-wide character. Some of the causes assigned abroad were of a local nature, but the increased gold production and the trend toward a higher standard of living were recognized as having a marked influence in every civilized community. Toward the close of the year the advance of prices of food products seemed to be partially arrested, though there was general uncertainty as to whether the maximum had been reached or the respite only temporary. *Bradstreet's* reported on December 1, 1910, that 56 commodities, among them pork and hog products, butter, cheese, sugar, tea, most cereals, and their products, beans, and potatoes, were lower than on December 1, 1909, while 34, including beef, eggs, fish and coffee, were higher, and 16, among them milk and bread, had remained unchanged. It was noted, however, that as is usually the case following high levels, retail prices were receding much more slowly than were wholesale rates.

**PROGRESS IN FOOD AND NUTRITION STUDIES.** One of the effects of the high prices was to increase popular interest in food and nutrition studies, especially those of direct application in the home, and in publications dealing with these topics. A popular discussion of the economical use of meat in the home, prepared as a part of the nutrition investigations of the United States Department of Agriculture, and containing in addition to other data receipts for the utilization of the cheaper cuts of meat, met with wide distribution under the name of *Uncle Sam's Cook-Book*, over 500,000 copies being printed to meet the demand. Several studies of the diet of various classes of people were reported during the year. One of these, dealing mainly with persons living in rural regions, indicated that the prevailing diet of the white mountaineers living in the southeastern States is largely made up of salt pork, corn meal, and wheat flour, and is not only lacking in variety, but is also low in protein. Another series of studies among the orphaned and aged in public institutions in Baltimore and Philadelphia led to an estimate of much value in institution dietetics that the relative food consumption of aged people, irrespective of sex, averages about 0.9 of that of a man of full vigor at moderate work, and that for extreme

old age is from 0.7 to 0.8 the normal consumption.

A notable contribution along similar lines was a further study of the native peoples of Bengal, where diets of great diversity have been adhered to by different tribes for generations. These studies were of particular interest because of their bearing on the much-discussed protein optimum. An intimate relation was found to exist between a high nitrogen metabolism and the position of a people in the scale of mankind. A comparison of the relative food value of beef and cheese was continued by the United States Department of Agriculture. By the use of its respiration calorimeter the fact was brought out that cheese, contrary to the popular belief, requires no more energy for its digestion than beef. Experiments reported by the Texas Experimental Station demonstrated that palatable cakes, bread and other foods can be prepared with cottonseed meal as an ingredient, and that these foods are very rich in protein. In another study with considerable commercial possibilities, it was found that many varieties of dates can be marketed in an immature condition and then ripened artificially through exposure to the vapor of acetic acid and certain other substances thereby minimizing bruising in transit and souring during unfavorable weather.

A number of scientific studies were reported dealing with cold storage, especially of poultry and eggs. Proper and prompt handling of these products before storage was found to be a most important factor, and when followed both poultry and eggs were found to be of good quality and flavor up to from six to nine months in storage.

Much interest was shown during the year in institution dietetics, one manifestation being in the provision of "penny lunches" for school children in several of the larger cities. A conference on household and institution management was held at Lake Placid, N. Y., June 28 to July 2.

Instruction in food and nutrition was widely offered, many institutions of all grades adding domestic science courses to their curriculum. The third Graduate School of Home Economics was held at the Iowa State College, July 6-20, in connection with the Fourth Graduate School of Agriculture.

The most important international gathering of the year was the Second Congress of Alimentary Hygiene. This was held at the Brussels Exposition, October 4-8, under the patronage of the King of the Belgians and the Belgian government, and attracted a large attendance.

**BOOKS OF THE YEAR.** A few of the more important publications dealing with food and nutrition to appear in 1910 were the following: T. B. Osborne, *The Vegetable Problem* (London and New York); J. B. Leathes, *The Fats*, (New York); J. Rennes, *Traité de l'inspection des Viandes* (Paris); R. Luce et al., *The Cost of Living* (Boston, State Commission); H. H. B. Meyer, *Select List of References on the Cost of Living and Prices* (Washington, Library of Congress); C. R. Askwith, *Cost of Living in Belgian Towns* (London government); W. S. Hall, *Nutrition and Dietetics* (New York and London); M. Labbé, *Régimes alimentaires* (Paris); N. Zuntz and A. Loewy, *Lehrbuch der Physiologie des Menschen* (Leipzig). See separate articles

on food products, also LIQUORS, FERMENTED AND DISTILLED.

**FOOT AND MOUTH DISEASE.** See VETERINARY SCIENCE.

**FOOTBALL.** The rule experts after many conferences in the spring of 1910 evolved what practically amounted to a new game of football. The radical changes made were the result of the severe and wide-spread criticisms which reached their climax in 1909 and which were due to the deaths and many serious injuries resulting from the contests of that and previous years. According to the statistics gathered by a New York newspaper, the rule-makers were only partially successful in eliminating the danger element from the game. These figures show that in 1910 there were 14 deaths attributed to football as against 32 in 1909 and that 40 players were seriously hurt as compared with 73 in 1909. Significant in this connection, however, is the fact that no deaths occurred among the players in the larger colleges where a careful training system is adhered to, nor were there many serious injuries among such players. The experts insisted, therefore, that the aim of the rule-makers had been very nearly achieved. The most important of the new rules were those permitting a player to be taken out and substituted again at any time, dividing the game into four periods instead of two halves, prohibiting mass plays and restricting the use of the forward pass. Considerable dissatisfaction was expressed by those interested in the game over the workings of the forward pass and it is likely that changes will be made in the rules governing this play. As a whole, however, it is believed by the majority of the experts that the new kind of football has come to stay.

The season was one of surprises, the greatest being the wonderful rally of Yale after defeats administered by West Point and Brown and the scoreless tie with Vanderbilt. These reverses instead of disheartening the Yale men only served to inspire them to greater effort with the result that Princeton was vanquished and Harvard played to a standstill, neither eleven being able to score. Harvard went through the season without suffering a defeat and was undoubtedly the strongest team in the country. Annapolis also had a string of unbroken victories, but did not meet teams of the same calibre as Harvard. Pennsylvania's record was good although an unexpected defeat was sustained early in the season at the hands of Ursinus.

The results of the principal games played by the Eastern Colleges follow: *Harvard* defeated Bates 22-0, Bowdoin 32-0, Williams 21-0, Amherst 17-0, Brown 12-0, West Point 6-0, Cornell 27-5, and Dartmouth 18-0, and played a scoreless tie with Yale. *Pennsylvania* defeated Dickinson 18-0, Gettysburg 20-0, Franklin and Marshall 17-0, Brown 20-0, Pennsylvania State 10-0, Carlisle Indians 17-5, Lafayette 18-0, and Cornell 12-6; lost to Ursinus 5-8, and tied with Michigan 0-0. *Annapolis* defeated Washington and Jefferson 15-0, Virginia Polytechnic Institute 3-0, Lehigh 30-0, New York University 9-0, and West Point 3-0, and tied Rutgers in a scoreless game. *Brown* defeated Tufts 27-9, Yale 21-0, Vermont 50-0, and Carlisle Indians 15-6; was defeated by Pennsylvania 0-20, and Harvard 0-12, and played a scoreless tie with Colgate. *Yale* defeated Wesleyan 22-0, Syracuse 12-6, Tufts 17-0, Holy Cross 12-0, Colgate 19-0,

and Princeton 5-3; lost to West Point 3-9, and to Brown 0-21, and played scoreless ties with Harvard and Vanderbilt. *Princeton* defeated Stevens 18-0, Villanova 36-0, New York University 12-0, Lafayette 3-0, Carlisle Indians 6-0, Dartmouth 6-0, and Holy Cross 17-0, and lost to Yale 3-5. *Dartmouth* defeated Colby 18-0, Vermont 33-0, Williams 39-0, and Amherst 15-3; and lost to Princeton 0-6, and to Harvard 0-18. *West Point* defeated Tufts 24-0, Lehigh 28-0, Villanova 13-0, and Trinity 17-0, and lost to Harvard 0-6, and to Annapolis 0-3. *Cornell* defeated Hobart 50-0, Vermont 15-5, and Chicago 18-0; lost to Harvard 5-27, and to Pennsylvania 6-12, and played a scoreless tie with Oberlin.

Michigan's victory over Minnesota settled the championship among the Western Colleges. The principal games played in the West resulted as follow: *Michigan* defeated Michigan Agricultural College 6-3, and Minnesota 6-0, tied Case School 3-3, and Ohio State 3-3, and played a scoreless tie with Pennsylvania in the East. *Minnesota* defeated Ames 49-0, Nebraska 27-0, Chicago 24-0, and Wisconsin 28-0, and lost to Michigan 0-6. *Illinois* defeated Northwestern 27-0, Indians 3-0, Drake 29-0, Purdue 11-0, Chicago 3-0, and Syracuse 3-0. *Indians* defeated Chicago 6-0, Wisconsin 12-3, and Purdue 15-0. Vanderbilt's tie game with Yale gave the Tennessee University first rank among the Southern colleges. Georgetown also made a good showing.

The selections made by Walter Camp for the All-American team were: Ends—Kilpatrick (Yale) and Wells (Michigan); tackles—McKay (Harvard) and Walker (Minnesota); guards—Fisher (Harvard) and Benbrook (Michigan); centre—Cozens (Pennsylvania); quarterback—Sprackling (Brown); halfbacks—Wendell (Harvard) and Pendleton (Princeton); fullback—Mercer (Pennsylvania).

The championship of the Intercollegiate Soccer League was won by Columbia, whose team went through the season without suffering defeat. Yale finished second and Harvard third. In England the annual match between Oxford and Cambridge was won by Oxford. In international games England defeated France and Switzerland but lost to Scotland. Clan McDonald won first place in the series played by the New York Amateur Association Football League. The Tacony A. C. of Philadelphia captured the American Cup by defeating the Scottish-Americans of Newark.

**FOREIGN-BORN CITIZENS.** See IMMIGRATION AND EMIGRATION.

**FOREIGN MISSIONS.** See MISSIONS, PROTESTANT FOREIGN.

**FOREIGN RELATIONS, UNITED STATES.** See UNITED STATES.

**FOREIGN TRADE.** See UNITED STATES, and under different countries.

**FORESTIER-WALKER.** General Sir FREDERICK WILLIAM EDWARD. An English soldier, died August 31, 1910. He was born in 1844 and was educated at Sandhurst. In 1862 he entered the Scots Guards. From 1869 to 1873 he was adjutant. He served in the Kaffir War, 1877-8, and was mentioned in the despatches for bravery. In 1878-9 he was military secretary to Sir Bartle Frere. He served in the Zulu war of 1879 and received a medal for gallantry. In 1888-9 he commanded an infantry brigade at Aldershot. From 1889 to 1895 he

commanded troops in Egypt and from the latter year to 1899 was lieutenant-general commanding the Western District. From 1899 to 1901 he was lieutenant-general in command of the lines of communication of the South Africa Field Force and for the third time received a medal for bravery. From 1905 to the time of his death he was governor of Gibraltar.

**FOREST LEGISLATION.** See FORESTRY.

**FOREST RESERVES.** See FORESTRY and CONSERVATION.

**FORESTRY.** The forestry problem of the United States is the conservation of the remnants of our forests, using the mature products, but providing for future necessities. Originally forests covered about 60 per cent. of the United States. This area has been greatly reduced, and according to the Eleventh Census report about 36 per cent. of the land area was in forests. The percentage has suffered further loss, as in 1910 the estimated area was about 540,000,000 acres, or 29 per cent. of the total. From much of the present area reported as in forest most of the merchantable timber has already been cut. Private owners hold 81 per cent. of the present forests while 18.5 per cent. are in National Forests and 0.5 per cent. are in State reserves.

**FOREST FIRES.** The year 1910 will long be remembered for the enormous fire losses in the forests of the United States. The early summer was characterized by an exceptional drought, particularly in the northwestern portion of the country. The losses due to forest fires had already amounted to \$100,000,000 when in August a series of conflagrations broke out in Montana, Idaho, Oregon, and Washington, and before they were extinguished an amount of timber almost equal to the entire cut of the whole country for two years had been destroyed. These fires are believed to have caused the destruction of timber valued at \$175,000,000, and the cost of fighting them is estimated at over \$1,500,000. In addition to the financial losses, 76 persons were killed and Wallace, Idaho, and several smaller towns were almost entirely destroyed. To meet the urgency of the situation every available source was drawn upon, and the United States Forest Service employed over 2000 men and 16 companies of troops were detailed for work in the National Forests and the Indian reservations. In addition, railroads, lumber companies, and private individuals aided in checking the spread of the fires, which were finally extinguished by timely rains and snow in the mountains. The lesson of these fires is the inadequacy of the present means for fire control over such large areas.

**MEETINGS.** The twenty-ninth annual meeting of the American Forestry Association was held in Washington, D. C., January 18, 1910. The second National Conservation Congress was held at St. Paul, Minn., September 5, and the Southern Conservation Congress at Atlanta, Ga., October 7. The annual meeting of the Canadian Forestry Association was held at Fredericton, N. B., February 24. The sixth International Union of Forest Experiment Stations met in Belgium in September, 1910. Meetings of the Forest Supervisors of Districts 1 and 6 were held at Missoula, Mont., and Portland, Ore., in March, 1910.

**CONSUMPTION.** According to preliminary reports of the United States Bureau of the Census, the total lumber cut of 1909 was 44,585,000,000

feet B. M., as compared with 32,224,000,000 the year previous. The various species of southern pines that are commercially known as yellow pine contributed 22,000,000,000 feet, or 49.2 per cent. of the entire lumber production, followed by Douglas fir (10.9 per cent.), and white pine (8.8 per cent.) among soft woods, and oak (10 per cent.) of the hard woods. The soft woods supplied about 33,875,000,000 feet and the hard woods 10,693,000,000 feet of the cut. The ten leading States in order of their lumber production for 1909 were: Washington, Louisiana, Mississippi, North Carolina, Arkansas, Virginia, Texas, Wisconsin, Oregon, and Michigan. The railroads purchased cross-ties in 1909 to the number of 123,754,000, costing \$60,321,000. There were 253 wood pulp mills in operation during the whole or part of 1909 and they consumed 4,002,000 cords of wood, an increase of 19 per cent. over the year previous. The total production of air-dry pulp was 2,491,406 tons, as compared with 2,118,947 tons in 1908. An estimate of the firewood consumed in the United States shows there is annually used over 86,000,000 cords of wood of an average value of \$2.91 per cord. Of this amount about 81 per cent. is consumed on farms. The exports of wood and manufactures of wood for the year ended June 30, 1910, were valued at \$78,813,803, and the imports for the same period were worth \$54,422,504.

**THE NATIONAL FOREST SERVICE.** On June 30, 1910, there were 149 National Forests, 146 in continental United States, 2 in Alaska, and 1 in Porto Rico. The total area at that time was 192,931,197 acres. During the year there were 2,037,545 acres eliminated from the National Forests and 467,517 acres added by executive order. Further changes were made in the boundaries of the National Forests, and on September 30, 1910, the number was 152 and the gross area 191,548,757 acres, 11 per cent. of which is alienated land held by States or individuals. There was expended by the Forest Service for general expenses in 1910, \$3,575,394.21, and for the improvement of the National Forests \$537,101.27. The total appropriations for the year were \$4,697,731.08. The number of employees of the Forest Service on July 1, 1910, was 3636, of whom 3397 were stationed out of Washington, D. C. The moneys received from the sale of timber, grazing permits, etc., amounted to \$2,090,148.08. Of this sum \$438,702.81 was returned to the States in which the income was earned, to be applied to school and road purposes. The usual free use of timber and grazing privileges to settlers was granted. The policy of decentralizing much of the work of the National Forests by establishing district headquarters has proved very satisfactory. New regulations regarding grazing in the National Forests have been promulgated, and a new edition of the *Woodman's Handbook* was issued.

Detailed studies are being made of the distribution of the more important forest tree species in the National Forests and means for their increase. More than ten tons of seed of forest trees were used in 1910 in extending the forest plantings. Efforts are being made to find uses for the less valuable woods, and it has been shown that by using the odd lengths of lumber a saving of over 2 per cent. of the cut of the Pacific Coast States is possible, and a like economy could be practised with yellow pine in

the South. The Forest Products Laboratory was formally opened at Madison, Wis., on June 4, 1910. The University of Wisconsin furnishes the building and the Forest Service the equipment and staff, and it is intended to carry on in this laboratory the chemical and physical tests of timber, investigations on the preservation and utilization of wood, etc. A statistical office, with headquarters at Chicago, has been established. A cooperative experiment has been begun between the United States Weather Bureau, Forest Service, and Geological Survey in two National Forests, where measurements of stream flow will be made for a number of years, after which one of the watersheds will be denuded and further observations made to compare the stream flow with and without forest cover. The experiment will be on a scale sufficient to give important data on this much discussed topic.

**PROGRESS IN STATE FORESTRY, LEGISLATION, ETC.** Relatively few of the State legislatures were in session in 1910, but in a number of instances laws were passed strengthening the fire control and other protective features of forest management. In California, Vallejo has become one of the pioneers in municipal forestry and several thousand acres about its water supply are being afforested. In Connecticut more than 500,000 forest trees were set out by private parties. In Hawaii cooperative planting experiments with eucalyptus are being extended, and rubber tapping experiments have shown the possibility of rubber production in that territory. In Kansas a new forestry law was passed and provision made for forest substations. In Kentucky the Forest Service has made surveys in six districts. The legislature of Louisiana passed a new forestry law for that State. In Maine prizes have been established under State patronage for the best woodlots, the prizes to be awarded at intervals of 18 years.

Massachusetts has acquired 2000 acres of land that are being planted as an object lesson. In 1910 more than 1,000,000 forest trees were planted under the supervision of the State forester, and an experiment in thinning a 50-year-old white pine woodlot is being made as a demonstration. Maryland has 4 State forests aggregating 1957 acres to be used as object lessons in forestry. Minnesota now has 3 State forests and a State forest experiment station, the combined areas of which are nearly 40,000 acres. Active steps have been taken toward the acquiring of a State forest of 2000 acres in Nebraska. New Jersey owns 9897 acres of forest lands which are managed as demonstration areas. In New York a new State forest, to be known as the Highlands of the Hudson Reservation, has been established. On January 1, 1910, the State owned 1,841,523 acres in the Adirondack and Catskill mountains. The Public Service Commission has ordered railroads passing through the State forests to equip their engines with oil burners to lessen the liability of forest fires. Pennsylvania now owns State forests containing nearly a million acres.

In the Philippines the Bureau of Forestry continues to do excellent work. The virgin forests are being studied and the mapping of Luzon and Mindanao has been completed. The forest area has been divided into 3 districts, each of which is under an American superintendent with Filipino foresters, guards, etc. The

revenue received from the sale of forest products for the year ended June 30, 1909, was 251,380 pesos. Experimental plantings of eucalyptus have been begun along the Gulf of Mexico in Texas. Vermont has established two State forests embracing 810 acres, and experiments are in progress in reforesting the sand plains along Lake Champlain. The Pennsylvania and the Santa Fé Railroads are actively engaged in forest planting along their trackage. The United States Department of the Interior has organized a forest service for the management of the forests on the Indian reservations. The Weeks bill, by which the White Mountain and Appalachian forests will be protected, passed the House of Representatives on June 24, 1910, and at the close of the year was pending in the Senate.

**FORESTRY IN FOREIGN COUNTRIES.** By a recent estimate the forest area of the world is placed at 4,000,000,000 acres, or 24 per cent. of the total land area. The countries estimated as having more than 10,000,000 acres of forest land are as follows:

#### EXTENT OF PRINCIPAL FOREST AREAS OF THE WORLD

Country.	Forest area. Acres.	Proport. of forest to total area. Per cent.
Russia, European .....	464,610,000	36.3
Finland .....	52,500,000	54.4
Austria .....	23,996,266	26.5
Hungary .....	18,692,000	25.7
Sweden .....	40,390,325	48.0
Germany .....	34,989,675	25.9
France .....	24,021,587	18.5
Norway .....	16,848,000	21.0
Spain .....	16,065,000	13.0
Italy .....	10,115,404	14.3
Russia, Asiatic .....	348,030,000	...
India .....	149,000,000	24.0
Japan .....	57,718,410	...
Philippines .....	49,000,000	...
Australasia, British .....	126,720,000	19.8
Madagascar .....	25,000,000	19.0
South America, tropical .....	528,000,000	...
Central Africa .....	324,000,000	...
West Indies .....	42,668,800	66.6
Canada .....	799,360,000	38.0
Mexico .....	25,000,000	5.1
Alaska .....	107,000,000	...
United States .....	545,000,000	29.0

For most of the countries the area given does not all represent productive forests or areas bearing commercial timber.

In Prussia a movement is on foot to decentralize the administration of the forests by increasing the responsibility of the district managers. The forestry budget for 1910 was increased by \$2,100,000 over that of 1909. From 1903 to 1907 forest fires in Prussia destroyed timber to the value of \$800,000, of which \$140,000 was insured. In England the Royal Agricultural Society is attempting to foster forestry by a series of prizes for the best managed forest plantations. During the past year great interest has been taken in rubber plantations and a large number of companies have been incorporated, especially in England, for rubber planting, the subject attaining speculative proportions. In India the forest systems are being extended so as to include all the forest domain under management. The teak forests of Siam are now under the supervision of European officers. China has established a school of forestry and forest planting has been begun. New South Wales has set aside forest reserves to the extent

of 7,000,000 acres. A forestry department has been established in the British Gold Coast of Africa, with M. McLeod as conservator. Extensive tree planting operations have been begun in Natal and Nyassaland. D. E. Hutchins has been appointed conservator of forests for British East Africa. A Canadian commission has been appointed to make an inventory of the forests of that country. A new forest reserve has been proclaimed covering the entire Rocky Mountain slope in Canada, from the international boundary to latitude 54° N. A preliminary survey has been begun of the forest resources of parts of Mexico, and a proclamation went into effect in Grenada on December 1, 1910, looking to the conservation of the timber and water supplies of that colony.

**FOREST SCHOOLS AND ORGANIZATIONS IN THE UNITED STATES, ETC.** Instruction in forestry was provided for during the year at the University of Missouri, Massachusetts Agricultural College, Washington Agricultural College, Louisiana State University, University of Ohio, Oregon Agricultural College, and Kansas Agricultural College. There are now 50 institutions in the United States which offer instruction in forestry, the courses varying from graduate instruction to undergraduate courses, forestry as a subject in courses, special courses, and secondary schools. A correspondence school in forestry has been provided for at the Agricultural College of South Dakota. The Biltmore movable School of Forestry spent the winter of 1910 at Darmstadt, Germany, after which several weeks were spent in the Adirondacks, returning to Biltmore, N. C., for the summer. A chair of lumbering in the Yale Forest School was endowed by the National Lumber Manufacturers' Association. Mr. Joseph Battell has offered 10,000 acres of wild land in Vermont to Middlebury College to use for a school of forestry. As a result of the conference of forest school officers in Washington December 30, 1909, a standard course of forestry was outlined. In the University of the Philippines a 4-year course in forestry has been provided. Half the work will be practical field work, and Filipino graduates will be appointed forest rangers without examination. A bill establishing a National School of Forestry at Nebraska City, Neb., in honor of J. Sterling Morton was introduced in the United States Senate by Senator Burkett. A forestry school has been established in connection with Laval University, Quebec. In 1910 twenty-nine States had State forest officers and there were 33 fully organized State forestry associations. An international committee for the publication of the bibliography of forestry has been established.

Among recent appointments, G. H. Wirt has been made chief forester of Pennsylvania; C. R. Pettis succeeded Austin Cary as superintendent of State forests of New York; S. J. Record has become an instructor in the Yale Forest School; O. L. Sponsler, adjunct professor of forestry in the University of Nebraska; and Charles A. Scott, State forester of Kansas. Prof. C. Guyot, director of the Forest School at Nancy, France, from 1898, retired April 1, 1910. He was succeeded by M. Dubreuil. Prof. E. P. Stebbing was inaugurated as head of the forestry department of the University of Edinburgh, Scotland, October 12, 1910. Prof. S. B. Green, State forester of Minnesota, died July 11, 1910, and W. R. Fisher, author of volumes

4 and 5 of Schlich's *Manual of Forestry*, on November 13, 1910. See CONSERVATION.

**FOREST SCHOOLS.** See FORESTRY.

**FORESTS IN UNITED STATES.** See FORESTRY.

**FORMOSA, or TAIWAN.** An island off the China coast, a Japanese dependency. Estimated area, 13,503 square miles; estimated population (1909), 3,123,723. A census report published at the end of 1909 states that the "total population of Formosa existent at the time of the present investigation, i. e. at the hour between midnight and one a. m. on the 1st day of the 10th month in the 38th year of Meiji (October 1, 1905), was 3,039,751." This figure, it is explained, includes 20,459 persons temporarily present and does not include 28,009 persons temporarily absent; so that the total permanent or settled population was reported at 3,047,391. Of the 3,039,751 persons, 1,610,816 were males and 1,428,935 females; Formosans, 2,073,280 (1,567,548 male, 1,405,732 female); Japanese, 57,335 (34,624 males, 22,711 females); foreigners, 9136 (8644 males, 492 females); of the foreigners 8973 were Chinese. Of the native population 3.9 per cent. were returned as opium eaters and smokers. It should be noted that this "investigation" covered only the portion of the island under actual Japanese control, that is, the western part and a strip along the east and south coasts, or an area of 1222 square ri (7277 square miles). The Japanese are steadily enlarging their administrative territory, but constant military operations are necessary, and in 1910 frequent engagements with the savage tribes of the eastern inland part of the island were reported. On October 1, 1905, Taihoku, the capital, had 74,415 inhabitants; Tainan, 50,712; 1908 estimate, 87,745 and 54,066 respectively. Of the population (October 1, 1905), only 2.38 per cent. were able to read and write, but, among many other improvements, the Japanese have established and are developing an educational system. The latest educational report available is for the year ended December 31, 1907. There were 1128 schools of all kinds, with 1944 teachers (of whom 547 were Japanese and 1828 men) and 59,321 pupils (of whom 4525 were Japanese and 52,907 boys). Public schools for the natives numbered 102, with 765 teachers and 34,382 pupils (30,612 boys); for the "aborigines," 15 (46 teachers, 1201 pupils); shobo schools (private schools maintained by the natives), 873, with 886 men teachers and 18,612 pupils (18,236 boys). There are a few public higher and foreign private schools.

In 1909 the estimated area under cultivation was 1,618,800 acres. The leading product is rice; others of importance are tea, sugar, opium, ramie, jute, and sweet potatoes. A large part of the world's camphor supply is obtained in the forests under government monopoly. Gold (40,680 ounces in 1907) and coal are the leading mineral products. Manufactures include sugar, flour, oil, tobacco, spirits, iron-work, glass, soap, brick, etc.

Imports and exports of merchandise in 1907 were valued at 30,971,000 and 27,376,000 yen respectively; in 1908, 38,002,000 and 33,721,000; in 1909, 36,597,000 and 47,998,000. The leading imports are textiles, metal wares, lumber, tobacco, and opium. The principal exports are rice, tea, and camphor. Imports from Japan in 1909 amounted to 24,007,000 yen, and exports

thereto, 36,310,000. There are upwards of 300 miles of railway in operation, exclusive of over 170 miles of light railway for sugar plantations. Telegraph lines (1908), 847 miles; wires, 2861 miles. Post-offices (1908), 128.

The estimated revenue and expenditure for the fiscal year 1909 balanced at 33,871,328 yen; 1910, 29,951,449; 1911, 38,689,763. Revenue consists largely of inland taxes, customs, and subsidies from Japan; expenditure is chiefly for internal administration and public works. Japanese government in Formosa began March 31, 1896. The governor-general in 1910 was Lieut.-Gen. Count Sakuma.

**FORSTER, E. M.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**FOSS, CYRUS DAVID.** An American bishop of the Methodist Episcopal Church, died January 29, 1910. He was born in Kingston, N. Y., in 1834 and graduated from Wesleyan University in 1854. From 1854 to 1857 he was instructor and principal of Amenia Seminary, N. Y. In the latter year he entered the itinerant ministry in the New York Conference. From 1857 to 1859 he was stationed at Chester, Orange County, N. Y., and from 1859 to 1865 was pastor in Brooklyn. From the latter year to 1875 he was pastor in various New York churches. From 1875 to 1880 he was president of Wesleyan University. He acted as fraternal delegate to the Conference of the Methodist Episcopal Church South in 1878 and to the British Wesleyan Conference in 1886. He was elected bishop in 1880 and in his official capacity visited the Methodist Episcopal missions in Europe, 1896; in Mexico, 1893; in India and Malaysia, 1897-8. He made a tour of missionary observation around the world, 1906-7. He was the author of *Religious Certainties*, and *From the Himalayas to the Equator*.

**FOSS, EUGENE NOBLE.** See MASSACHUSETTS. **FOSSILS.** See GEOLOGY.

**FOSTER, JUDITH ELLEN (HORTON).** An American lawyer and lecturer, died August 11, 1910. She was born at Lowell, Mass., in 1840 and was educated in the public schools and in the Genesee Wesleyan Seminary. In 1855 she removed to Clinton, Ia., where in 1869 she was married to E. C. Foster, a lawyer. She studied law and was admitted to the bar in 1872. She became prominent in the work of the Woman's Christian Temperance Union and was superintendent of the legislative department and popular lecturer for that organization. When it became politically affiliated with the Prohibition party she withdrew from it and entered the non-partisan Woman's Christian Temperance Union. Mrs. Foster was for many years active in political campaigns. In 1907, on the death of her husband, she was appointed a special agent in the Department of Justice at Washington. She was one of the few women admitted to practice before the United States Supreme Court.

**FOSTER, JOHN P. C.** An American physician, died April 1, 1910. He was born in New Haven, Conn., in 1847 and graduated from Yale College in 1869. He entered the Yale Medical School and graduated in 1875. After his graduation from the Medical School he delivered the first course of lectures on anatomy in the Yale Art School. For a time he was post surgeon at New Haven for the United States Marine Hospital Service. He was active in anti-tuberculosis work in both State and national societies and in 1908 was chosen vice-president of the National

Society for the Study and Prevention of Tuberculosis. In 1909 he was appointed by the governor a member of the Connecticut Tuberculosis Commission and was elected chairman. The success of the Gaylord Farm Sanitarium at Wallingford, Conn., was mainly due to his efforts. In recognition of his services in anti-tuberculosis work the degree of Master of Arts was conferred upon him by Yale University in 1909.

**FOSTER, J. W.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**FOULKROD, WILLIAM W.** An American public official, member of Congress from Pennsylvania, died November 13, 1910. He was born in Frankford, Philadelphia, in 1846 and was educated at the public and private schools of that city. He was engaged in business and was president for twelve years of the Philadelphia Trades League. He was also a member of the Citizens' Permanent Relief Commission. He was elected to the 60th and 61st Congresses 1907 and 1911.

**FOUNDATIONS.** During the year 1910 there was completed one of the most interesting and difficult foundation projects recorded in engineering literature. This foundation was designed to carry the large municipal building of the City of New York which in its lower floors serves as a subway station. This building rises 337 feet above the curb with twenty-five stories and a tower carried fifteen stories higher or 560 feet above the street. It has a frontage of 381 feet on Centre Street and a total depth of 173 feet; so that its size and weight may be appreciated. To carry the weight of such a structure, ordinarily it would be necessary to carry the foundations for the supporting columns down to bed rock, which at this particular point of Manhattan Island is at a depth of from 144 to 178 feet below street level. Obviously such foundations had to be constructed with the use of pneumatic caissons in which air pressure is maintained as the material is excavated. A limit of 50 pounds is placed by law on the caisson air pressure in which workmen are permitted and this was reached when a point 115½ feet below tide level was arrived at. After considerable investigation the decision was reached by the engineers of the Department of Bridges of the City of New York in charge of the construction of the building and the builders, that it would be possible to use as a bearing surface the sand itself overlying the bed rock, particularly if the feet of the supporting foundations could be enlarged so as to present a greater bearing surface.

Accordingly the greatest depth to which any single caisson was sunk was 112 feet 1 inch below the tide level or 144 feet below the street level. As the material in which these foundations have been excavated varies in character and position, differences in construction have been permitted. Where the rock was sufficiently near the surface the caissons were sunk direct to bed rock, and where these were too far distant broad concrete foundations bearing on sand with a conservative maximum pressure of six tons to the square foot were sunk. The average depth of these foundations was 72 feet below the curb. This particular class of foundations was required for that portion of the building north of the main tower, below the north wing, but for the south wing no particular difficulty was encountered and 68 caissons ranging in size from 19 by 19 feet square to 6 feet in diameter were

carried down to bed rock to an average depth below the street of 136 feet. Working chambers made of reinforced concrete, timber and steel were used in building the foundations and in these workmen excavated the sand while under pressure and passed it up through steel shafts and air locks. The working chamber and the shaft were then filled with concrete so that foundation piers absolutely monolithic and reinforced by steel rods were formed.

These foundations were the deepest ever built by the pneumatic process and represented an outlay of \$1,443,000, this being the contract price for the work.

The superstructure will cost \$5,598,000. As illustrative of the improvement made in caisson operations it may be stated that but two cases of the "bends" occurred and there was no loss of life from caisson disease. Physicians were constantly in attendance and a hospital was maintained so that the capacity of each workman for labor under various pressures could be determined by frequent examinations. Incidentally, it may be observed that along Park Row extreme care had to be used in supporting and then underpinning the structure of the elevated railroad, under the columns of which concrete bases were built to a depth of 42 feet below street level. Furthermore, as the floor of the subway in Centre Street is 12 feet above the lowest level of the building, it also had to be supported as well as protected laterally by sheet piling while work on the foundations was in progress.

**FOUNDATIONS FOR KINZIE ST. (CHICAGO) DRAWBRIDGE.** In replacing the drawbridge carrying the tracks of the Chicago and Northwestern Railway over the Chicago River at Kinzie Street, the trunnion pier for the new bascule bridge had to be located where bed rock was at great depth, 94 feet below the bottom of the river. The pier is a large one, as the new lift bridge is a Strauss through riveted truss 170 feet long and carries two tracks. Caissons were put down under air pressure 51 feet below Chicago city datum, and 29 feet below the river bed. From the bottom of these caissons, wells 10 feet in diameter were sunk 65 feet, at which level rock was reached and the wells were filled up with concrete. The main pier was then built up on these, resulting in an entirely satisfactory foundation. Permanence of the completed work was imperative, as this is one of the busiest railway lines entering Chicago over the river. See also BRIDGES.

**FOURTH OF JULY ACCIDENTS.** See TETANUS.

**FOWLER, FRANK.** An American artist and writer on art, died August 18, 1910. He was born in Brooklyn, N. Y., in 1852 and was educated by private teachers and at Adelphi Academy, Brooklyn. He studied for two years at Florence and for six years at Paris under Carolus Duran and at the Ecole des Beaux Arts. He established himself in New York in 1880 and became well known as a portrait painter. He painted portraits, among others, of Mme. Modjeska, Charles A. Dana, A. T. Hadley and William Dean Howells. He was awarded a medal in Paris in 1889, Atlanta, 1895; Buffalo, 1891, and Charleston, 1901. In 1889 he was made a member of the National Academy. Among his writings on art subjects are *Oil Painting, Drawing in Charcoal and Crayon, Portrait and Figure Painting*. He contributed also articles on art to the various magazines.

**FOX, JAMES D.** An American jurist, died October 6, 1910. He was born at Frederickstown, Mo., in 1847 and was educated in the public schools and at St. Louis University, which he attended in 1864-5. He was admitted to the bar in 1867 and practiced law in Frederickstown. From 1880 to 1902 he was circuit judge of the 27th judicial circuit of Missouri, and from 1903 to the time of his death he was associate justice of the supreme court of Missouri.

**FRANCE.** A republic of Western Europe, made up of 87 departments (including Belfort). Capital, Paris.

**AREA AND POPULATION.** Area, 536,464 square kilometres (207,129 square miles). Population in 1901, 38,961,945; in 1906, 39,252,267. Marriages in 1908, 315,928; divorces, 11,515; living births, 791,712; still-births, 37,154; deaths, 745,271. Surplus of births over deaths, 46,441; in 1907 the deaths exceeded the births by 19,890. Paris had (1906) 2,763,393 inhabitants; Marseilles, 517,498; Lyons, 472,114; Bordeaux, 251,917; Lille, 205,602; Toulouse, 149,438.

**EDUCATION AND RELIGION.** As the three departments of Algeria are for administrative purposes included with those of France, official statistics frequently include both countries. The following table shows the condition of the various classes of establishments, on dates named, in France and Algeria, excepting in instances marked F, which are for France alone:

	Schools	No. Teachers	Pupils
Infant schools, 1907-8...	3,391	8,449	631,287
Primary, lay " ....	80,319	147,996	5,448,481
" clerical " ....	1,323	4,397	151,560
Lycées—1909:			
Boys .....	111	.....	60,548
Girls (F.) .....	48	.....	17,448
Colleges .....	293	.....	47,044
Private—1908 .....	627	.....	64,558
Students in state universities in 1909..			41,897

There are special and technical schools and colleges of all kinds; normal schools; schools of art and science; and military, naval, and commercial institutions.

The state recognizes no religion. The question of pensions and allowances to be paid (as a transitory measure), under the law of December 9, 1905, to the Roman Catholic clergy remains unsettled, the Church refusing to recognize the fact of separation. Total estimated expenditure for worship for 1910, 497,800 francs (310,000 for assistance to the clergy and their families).

**AGRICULTURE.** Of the 36,977,098 hectares (last census report) under crops, grasses, and fallow, the following table shows the area devoted to cereal and root crops in the four years past, in thousands of acres (2.471 acres in a hectare):

	1907	1908	1909	1910*
Wheat .....	16,246	16,221	16,300	16,120
Oats .....	9,559	.....	9,703	9,672
Rye .....	3,063	3,075	3,032	3,061
Barley .....	1,760	.....	1,815	1,843
Maslin .....	356	353	350	341
Potatoes .....	3,761	3,819	3,824	3,766
Sugar beets .....	542	551	585	576

\* Preliminary estimate of the French Ministry of Agriculture.

The yield is seen in thousands of Winchester bushels:

	1907	1908	1909	1910 *
Wheat .....	365,372	317,765	356,193	268,364
Oats .....	294,497	.....	331,183	316,133
Rye .....	54,169	51,703	54,934	48,212
Maslin .....	6,843	6,465	5,619	5,722
Barley .....	41,712	.....	46,144	44,532
Potatoes .....	512,229	625,014	613,041	308,885
Sugar beets† .....	5,730	6,396	6,894	5,702

\* Preliminary estimate of the French Ministry of Agriculture. † In thousands of tons (2000 pounds).

The potato yield per acre, which in 1908 and 1909 had averaged over 160 bushels, was in 1910 only 82 bushels, owing to unfavorable weather conditions. The wheat crop also suffered and heavy imports will be required to make up the deficit in these and other staples. Winter cereals have been seriously damaged by fall rains, and the outlook for the coming crops is scarcely more hopeful than at the same period the preceding year, which is reported as one of the most disastrous years agriculturally in the history of the country.

Besides the area planted to sugar beets, over 1,500,000 acres in 1910 were devoted to the production of beets for feeding purposes, and about 130,000 to beets for distillation. Yield: for feeding, 23,123,000 tons (14.47 per acre), against 25,529,000 (15.63) in 1909; for distillation, 2,094,000 tons (16.17 per acre), against 2,171,000 (17.88) in 1909. Area sown to corn in 1907, 1,236,000 acres; production, 23,284,000 bushels (24,000,000 bushels in 1908). Buckwheat, 1,243,000 acres; 20,585,000 bushels. Meadows and permanent pastures, 13,346,000 acres; hay and grasses crop, 402,898,000 cwt. Olives (about) 328,648 acres, 125,000 tons. Vineyards, in 1907, 4,073,930 acres, 1,272,854,000 gallons; in 1908, 4,086,120 acres, 1,331,900,000 gallons; in 1909, 4,013,490 acres, 1,197,810,000 gallons. Total sales from the champagne district, year ending March 31, 1910, 39,294,526 quarts; 1909, 32,705,338. Cider production: 1907, 88,150,000 gallons; 1908, 439,500,000; 1909, 214,610,000. The vineyards, orchards, and gardens were seriously damaged by cold weather and continued heavy rains during the agricultural year 1910, and scarcity and high prices have resulted. Livestock (beginning of 1908): 3,094,698 horses, 191,715 mules, 361,073 asses, 13,949,722 cattle, 17,460,284 sheep, 6,995,124 swine, 1,421,009 goats. Silk culture is encouraged by the government and is carried on in 24 departments. Cultivators (1907), 124,463; eggs put in incubation 188,360 ounces (of 25 grams); total production of cocoons, 8,396,201 kilograms.

MINING AND METALS. The output and value of mining products in 1908 were as follows:

	Tons	Francs
Coal .....	36,633,000	584,341,000
Lignite .....	751,000	8,002,000
Bituminous .....	171,000	1,357,000
Iron ore .....	10,057,000	45,538,000
Copper .....	760	20,000
Lead .....	13,400	2,463,000
Zinc .....	52,600	4,225,000
Iron pyrites .....	285,000	4,460,000
Sulphur .....	2,200	42,000
Manganese ore .....	15,900	380,000
Antimony .....	26,000	1,844,000
Arsenic .....	2,381	60,000
Wolfram .....	113	266,000
Salt .....	708,784	10,849,817

The output of mines and furnaces is given below in metric tons:

	1907	1908	1909
Coal and lignite.....	36,753,627	37,384,384	38,071,758
Iron ore.....	9,196,474	10,057,000	.....
Pig iron.....	3,590,200	3,400,771	3,632,105
Iron & steel, mfd.....	580,000	.....	.....
Steel, worked.....	1,860,300	.....	.....

Value of 1907 output from all quarries, 248,183,265 francs.

OTHER INDUSTRIES. The manufacturing industries employ (according to the 1901 census) 5,819,855 persons; extractive industries, 266,351; fishing, 67,772. The sugar works (251 in 1908-9) employed 33,623 men, 1866 women, 1134 children. Sugar yield, 723,081 tons, against 656,832 in 1907-8. Alcohol produced 1908, 55,836,000 gallons, against 55,326,000 in 1907. The state match monopoly yielded in 1908 a net profit of 29,453,964 francs; there were 6 factories, employing 683 men and 1219 women. Sales of manufactured tobacco (1908), 40,289 metric tons; profits of the monopoly (state), 389,735,000 francs. Value of fishing products in 1905, 122,891,036 francs.

COMMERCE. The trade for three years is given in thousands of francs:

	1907	1908	1909
Imports, general.....	7,874,600	7,180,400	.....
" special.....	6,223,000	5,640,500	5,972,618
" prec. mets..	805,000	1,189,000	.....
Exports, general.....	7,256,100	6,620,300	.....
" special.....	5,591,100	5,050,700	5,511,638
" prec. mets..	371,000	199,000	.....

Imports and exports of raw materials (1909), 3,888,501,000 and 1,562,412,000 francs respectively; manufactures, 1,156,113,000 and 2,684,722,000; food-stuffs, 928,004,000 and 811,703,000; exports by parcels post, 452,801,000. Principal articles of the 1908 special trade are given, with their value in thousands of francs:

Imports	1000 fr.	Exports	1000 fr.
Wool .....	549,000	Cottons .....	281,100
Coal .....	391,200	Silks .....	270,200
Cotton .....	389,900	Wool .....	228,600
Silk .....	279,900	Skins .....	217,900
Seeds (oil).....	253,700	Wine .....	196,800
Skins .....	239,700	Woolens .....	196,100
Machines .....	221,800	Articles de Paris.....	183,900
Timber .....	206,300	Novelties .....	145,600
Copper .....	138,900	Silk .....	133,900
Wine .....	116,500	Automobiles .....	127,300
Rubber .....	115,200	Clothing .....	123,800
Coffee .....	104,300	Chem. prods.....	122,000
Cereals .....	97,000	Metal wares.....	110,000
Minerals .....	87,900	Machines .....	92,500
Petroleum .....	86,900	Paper .....	84,800
Nitr. soda .....	83,800	Sugar .....	81,400
Flax .....	79,600	Glass, etc.....	80,200
Feathers .....	78,100	Butter, cheese... ..	79,300
Cellulose .....	77,000	Iron & steel.....	77,800
Dairy prods.....	62,400	Leather goods....	68,000

Principal countries of origin and destination, with value of trade (1908) in millions of francs:

	Imps.	Exps.		Imps.	Exps.
Gr. Brit.....	793.9	1,183.3	Italy .....	164.8	242.1
U. States.....	657.1	314.7	China .....	138.0	9.7
Germany .....	607.5	617.1	Switz .....	115.3	314.9
Belgium .....	409.5	749.2	Brazil .....	114.5	48.1
Algeria .....	273.1	399.0	Chili .....	103.4	20.4
Br. India.....	263.4	18.0	Neth'l'ds .....	100.2	56.0
Argentina .....	257.8	111.6	Turkey .....	88.4	64.5
Russia .....	239.6	72.8	Ind.-China.....	82.3	70.1
Spain .....	148.7	128.2	Aus.-Hun. ....	70.3	42.4

SHIPPING. The navigation at French ports is shown for 1908:

	Entered		Cleared	
	Vessels	1000 tons	Vessels	1000 tons
Coasting .....	77,624	7,894	77,624	7,894
Foreign trade.....	8,478	6,588	8,466	6,698
Total French.....	86,102	14,482	86,090	14,592
Foreign ships.....	22,073	21,163	22,222	21,221
Total .....	108,175	35,645	108,312	35,813

The merchant marine (December 31, 1908) contained 15,768 sailing vessels of 648,211 tons net, and 1608 steamers of 804,282.

**COMMUNICATIONS.** Length of railway lines open for traffic December 31, 1909, 40,433 kilometres of main lines, 8349 of local lines. On January 1, 1909, the Western railway system was acquired by the state. Length of telegraph lines (1908), 177,520 kilometres; wires, 972; telegraph offices, 14,880 state, other, 3582; 972; telegraph offices, 14,880 State, other, 3582; post-offices, 13,258.

Navigable rivers (1908), 5480 miles; canals, 3075. Length of roads (1907), 23,710 miles national, 38,830 vicinal.

**FINANCE.** The monetary unit is the franc, worth 19.3 cents. The revenue and expenditure are given for three years, below (1909 and 1910 estimates):

	1907	1909	1910
Revenue .....	3,968,367,131	4,041,494,081	4,182,828,225
Expend .....	3,880,240,263	4,041,271,697	4,185,382,482

Principal estimated sources of revenue and items of expenditure for 1910 (act of April 8, 1910):

Rev.	1000 fr.	Exp.	1000 fr.
Direct taxes...	582,948	Debt .....	1,269,367
Domains .....	70,089	Pres. & leg....	20,027
Ind. taxes a....	2,291,144	Ministries c ...	2,292,350
Monopolies b ...	911,954	Admin'n'd .....	559,403
Various .....	160,280	Repayments ...	44,235
Exceptional ...	68,541		
Rec. d'ordre....	98,232		
	4,182,828		4,185,382

(a) Registration, 692,470,300 francs; customs, 510,049,000; stamps, 197,921,300; sugar, 159,183,900. (b) Matches, 550,478,700; posts, 92,380,500. (c) War, 872,150,505; Marine, 375,575,477; Instruction and Fine Arts, 302,714,027; Public Works, Posts and Telegraphs, 265,044,667; Interior and Worship, 161,600,191; Colonies, 101,039,434; Commerce and Industry, 57,128,182; Justice, 39,128,800; Agriculture, 34,819,058; Foreign Affairs, 19,630,625. (d) Costs of administration and collection of taxes.

It is notable that while the budgets as voted show on the average a small surplus, the actual average deficit is large. To the budget of 1910 is annexed a statement of the deficits of the ordinary budgets from before 1814 to end of 1908, a total of 1,087,473,140 francs, which is still not representative of the difference between ordinary revenue and total expenditure.

The national debt has increased from 718.2 millions of francs in 1800 to 1282.7 millions in 1815, 5959.8 millions in 1848, 12,549.6 millions in 1871, 30,633.12 millions in 1909; and the interest, from 37.8 millions in 1800 to 1272.6 millions in 1909. The capital of the debt (exclusive of annuities, which do not figure in the official statement of the national debt), Jan. 1, 1910, stood at 31,432,175,630 francs; floating debt, 1,432,180,600.

The Bank of France is the sole bank of issue.

It stood, Jan. 13, 1910, as follows: Cash, 4,361,127,000 francs; portfolio, 1,030,136,000; advances, 714,406,000; securities and real property, 258,002,000; capital and reserve, 215,018,000; notes in circulation, 5,384,860,000; accounts current, 668,529,000. The national savings banks had, Dec. 31, 1908, 5,291,673 depositors, with deposits amounting to 1,538,678,067 francs; other savings banks, 7,914,871 depositors, 3,689,100,132 francs deposits.

**ARMY.** Personal military service in France is obligatory on every citizen between the ages of 20 and 45, and involves two years' service in the active army, 11 years in its reserve, 6 years in the territorial army and 6 in its reserve. The reservists and the territorial soldiers receive periodical training. The recruitment of the army was an important question in France, as on account of the declining birth rate the annual contingent forthcoming was progressively declining and in 1909 it had fallen to 207,000 from an average of 215,000 in the decade 1896-1905. By 1912 it was expected that the annual quota would be reduced to 204,000 and that in 10 years the total decline would amount to some 34,000 men lost to the army, which would mean that in 20 the strength of the army would be diminished by four army corps. Consequently in 1910 it was seriously proposed to enroll native and black troops in the colonies and dependencies as a part of the regular army and a battalion of Senegalese rifles so formed was sent to Algeria in 1910.

The active army (1910) had an establishment of 28,532 officers and 552,959 men for the active army itself and Saharan troops, and in addition there were 677 officers and 24,135 men in the gendarmerie and republican guard. The organization of the active forces embraces 20 army corps, each of which occupies one of the military districts into which France is divided. This is exclusive of the Paris garrison and the forces in Tunis. The corps headquarters are at Lille, Amiens, Rouen, Le Mans, Orléans, Châlons-sur-Marne, Besançon, Bourges, Tours, Rennes, Nantes, Limoges, Clermont-Ferrand, Lyons, Marseilles, Montpellier, Toulouse, Bordeaux, Algiers, Nancy. The active army had about 590 battalions of infantry, 30 battalions of chasseurs, 12 foreign battalions, 24 battalions of zouaves, 24 of Algerian tirailleurs, 1 Saharan tirailleurs, and 5 African light infantry, making a total of about 685 battalions. Reorganization of the infantry was under discussion in 1910 and this was expected to change the number and constitution of the various regiments into which these battalions were being grouped. The cavalry in 1910 comprised 31 regiments of dragoons, 21 of chasseurs, 14 of hussars, 13 of cuirassiers, 6 of chasseurs d'Afrique and 4 of spahis, each made up of 5 squadrons, in addition to 2 squadrons for the Sahara and a few squadrons of colonial troops. It was in the artillery that the greatest changes were taking place, as the reorganization provided by the law of 1909 was in full progress and was to be completed within two years. The new force thus constituted was to consist of 42 coast and 47 fortress batteries, 619 four-gun field batteries, 21 Rimailho 6-inch field howitzer batteries, 14 mountain batteries, and 16 horse batteries. On foreign service there would be 8 coast, 15 field and 4 mountain batteries. There were being organized 195 new field batteries, of which 36 were obtained by the transformation of horse batteries, while 94 were new organizations

and 65 remained to be created. The entire reorganization was expected to be completed by 1911. The engineers in the active army numbered 26 battalions, there were 3 railway companies with other technical troops and a military train of 72 companies forming 20 squadrons.

The last available returns of the strength of the active army by arms were as follows:

	France.	Algeria and Tunis.
Infantry .....	332,845	43,200
Cavalry .....	56,764	8,450
Artillery .....	76,936	3,875
Engineers .....	12,250	1,118
Train .....	10,560	1,850
Total .....	489,355	58,493

In addition there were 2200 non-commissioned officers and 13,000 men in the administrative troops, 4000 officers unattached, 420 officers and 3220 men in the military schools, and 2400 officers and 480 men supernumerary.

The reserve of the French army is organized into 245 three-battalion regiments of infantry with a skeleton organization which can be filled in time of emergency, 30 battalions of chasseurs, 40 regiments of cavalry, 41 squadrons, and 216 batteries. The territorial army comprised 145 regiments of infantry, 7 battalions of chasseurs, 42 squadrons of cavalry, about 100 field batteries, 20 battalions of engineers, and various miscellaneous civil, foreign and other troops. In 1910 the budget showed a considerable increase over that of 1909, due to the reorganization of the artillery, increases in pay and other reforms resulting from legislation. The total war effective strength of the French army continued in 1910 as in the previous year at about 2,350,000, to which could be added another million of men that could be placed in the field in time of war.

During the year specifications for a new automatic rifle were issued and considerable experimentation with various types was under way with an ultimate view to the re-armament of the entire army.

**NAVY.** In 1910 the larger vessels of the effective navy were: Battleships 18 (8 first-class), detailed as follows: one of 18,320 tons (the *Voltaire*, completed 1910); six of 14,865 tons each; one of 12,728; one of 12,205; one of 11,924; three of 11,260 tons each; one of 11,986; one of 11,882; one of 11,824; one of 10,983; one of 8948. Armored cruisers, 21 (13 first-class): one of 14,000 tons (the *Edgar Quinet*, completed 1910); one of 13,644 (the *Ernest Renan*, completed 1909); one of 12,750; three of 12,550 tons each; four of 10,000; three of 9516; three of 7735; one (1903) of 11,270; one of 6300; one of 5365; two of 4750. There were building in 1910: first-class battleships: two of 23,600 tons each, and five of 18,320; first-class armored cruisers, one of 14,000 tons. The number of effective warships of 1000 tons and over, and of torpedo craft of 50 tons and over, built and building (actually begun) in 1910, was 448, of 725,231 aggregate tons displacement, detailed as follows: 24 battleships (10,000 tons and over), aggregating 358,050 tons; 3 coast-defense vessels, 17,190; 22 armored cruisers, 211,070; 3 cruisers (over 6000 tons), 24,022; 8 cruisers (6000 to 3000), 33,527; 2 cruisers (3000 to 1000), 4706; 79 torpedo-boat destroyers, 31,

386; 227 torpedo boats, 21,584; 80 submarines, 23,696. The naval appropriation for 1910 was \$73,011,872; for 1909, \$64,899,589; for 1908, \$62,194,916; and the total naval expenditure, from 1900 to end of 1910, was placed at \$700,770,859. Personnel, 2879 officers and 53,900 men.

**GOVERNMENT.** The executive authority is vested in a president, elected for seven years by the National Assembly; he is assisted by a cabinet responsible to the Chamber. The National Assembly (the legislative body) is composed of a senate and a chamber of deputies. The members of the Senate (300) are elected indirectly for nine years, those of the Chamber (584) by universal suffrage for four years. The President (1910), Armand Fallières, was born Nov. 6, 1841, and was elected Jan. 17, 1906. The Cabinet, as constituted Nov. 3, 1910, was composed as follows: Premier, Minister of the Interior and of Worship, Aristide Briand; Justice, Théodore Girard; Foreign Affairs, Stephen Pichon; Finance, L. Klotz; War, General Brun; Marine, Admiral Boué de Lapeyrière; Instruction and Fine Arts, M. Maurice-Faure; Public Works, etc., L. Puech; Commerce and Industry, Jean Dupuy; Agriculture, M. Raynaud; Colonies, J. Morel; Labor, etc., L. Lafferre.

#### HISTORY

**TARIFF REVISION.** Tariff revision was discussed in the Senate early in March, when the committee in charge of the measure submitted its report. This report favored the proposed increase of duties on imports of manufactured articles, and the readjustment of the schedule of duties, but it declared that revision should be limited to the redress of the balance which had been disturbed by changes in the foreign tariffs since the French tariff of 1892 had gone into effect. Some fear of a tariff war with the United States was aroused, but negotiations with that country led to a settlement whereby the minimum tariff of each was to be granted to the other. The bill granting the French minimum to the United States passed the Chamber at the end of March. Meanwhile the tariff measure, as modified by the Senate, passed the Chamber and went into force on April 1. On the whole, the counsels of the moderate revisionists prevailed and the changes were made in a conciliatory spirit. Both the Protection and the Free Trade parties believed that a revision was necessary, but it was thought best that the modifications of the tariff of 1892 should be merely such as would meet the changes in the tariffs of foreign countries. It was held that the results were not such as to give any foreign government an excuse for retaliation. Nevertheless, it was regarded generally as a high protective measure in spite of the claim that it was merely a measure of economic defense. As passed by the Chamber its character was highly specialized and provided for a great number of concessions to foreign nations.

**OLD AGE PENSION ACT.** During January, February and March the Old Age Pension bill was discussed in the Senate and finally passed that body with amendments on March 22. The main features of the measure were as follows: To secure a state pension it was necessary that the man or woman applying should be 65 years of age and a wage-earner for at least 30 years. It provided for a compulsory contribution from

both the wage-earner and the employer; for men, 9 francs a year; for women, 6 francs; for boys under 18, 4 francs, and the same amounts respectively for the employers. In addition to the pension which they would receive from this source the state contributed an annuity or *viagère*, beginning at the age of 65. At the age of 55 a workingman might receive a pension at a proportionately reduced rate, but without the *viagère*. The pensions were very small. At best, the workingman's compensation at the age of 65 would be not more than 414 francs, including the state annuity of 60 francs. It was estimated that an old age pension administration would cost about \$27,500,000, which was to be made up of funds derived out of the revenue from the succession duties. The Old Age Pension bill, as modified in the Senate, received the assent of the Chamber on March 31. It was to go into effect Jan. 1, 1911.

**REFORM OF JUDICIAL PROCEDURE.** Early in January a bill for the reform of judicial procedure was under discussion. While the general spirit of it was approved, some of the terms of it were not wholly satisfactory. Its friends declared that the aim of the measure was not to call into question the impartiality of the bench, but to free the judge from the danger of drawing too hasty impressions as to the innocence or guilt of the accused. The bill accomplished this in their estimation by suppressing the interrogatory. The indictment had hitherto been the basis of the cross-examination of the prisoner and it was held that this was unfair since the prisoner ought not to be cross-questioned from evidence which had not yet been given in court. On January 11 the Minister of Justice authorized the introduction of the bill, which had been drafted by the extra-parliamentary commission appointed in 1909. In general, it abolished cross-examination by the presiding judge and provided that in criminal cases the public prosecutor should make a preliminary statement of the charges. It also established certain additional rules concerning the examination of witnesses and it gave the judge discretionary power to deal with the demand of the prisoners for witnesses when the prisoners were without means.

**SCHOOL QUESTION.** On January 14 the government was interpellated in the Chamber on the school question and an important debate followed. It dealt with the attitude of the bishops toward the state and the free schools, and the question which had been raised as to the impartiality of school teachers in imparting moral instruction. It also involved the question as to state control over private schools. Roman Catholic deputies charged the government with having disregarded neutrality in the teaching of pupils, denounced the system of primary education, and urged the Catholics to resist the government's policy of "obligatory free-thinking." The Radical position was that primary schools ought not to teach anything that any man in his senses could challenge and that the idea of God ought not to be discussed in the schools. The debate turned also on the action of the bishops who had prohibited the use of certain manuals in the free schools. Their action was defended by the Abbé Gayraud and the Catholics argued that the free schools ought to be subsidized by the government. On this occasion the Premier commented on the hostile attitude of the church, declaring that it wanted

war, and saying that the attack on the schools proceeded from the enemies of France who were concentrating against the government. He declared that the government would lose no time in defending itself from these attacks. On January 24 the debate ended with a vote of confidence of 385 to 137. In January Cardinal Luçon, Archbishop of Rheims, was tried in a suit brought by the School Teachers' Association for his action as to certain text-books. He declared that he had merely warned parents that the text-books prescribed by the government might impair the religious training of their children, but he was sentenced to pay a fine of 500 francs and costs. A similar suit against the Archbishop of Nancy was dismissed.

**THE DUEZ SCANDAL.** Charges of certain abuses having been made against the liquidators of the religious associations under the Associations Law, a Senate Committee was appointed to investigate their methods in 1907. It soon became evident that the officials had been guilty of irregularities. Ex-Premier Combes was especially active on the commission and had often referred to the excessive fees charged by the liquidators. A report of the commission, published early in 1910, justified these charges and called upon the Minister of Justice to put an end to such practices and punish those liquidators who had misused their opportunities for personal gain. The case of M. Duez soon afterward became public. He had resigned on the ostensible ground of ill health; and upon investigation of his accounts a certain item, amounting to 2,000,000 francs, the receipts for the sale of Stanislaus College, could not be traced. When asked to explain, M. Duez repeatedly deferred his answer, but finally on March 7th appeared before the new judicial liquidators appointed by the government and made a full confession, declaring that he had misappropriated even more than they had suspected. His defalcations in private funds and in religious property were estimated at 5,000,000 francs. M. Jaurès sharply censured the government for its delay in taking action, saying that had they proceeded against M. Duez two years earlier he would have confessed his guilt as well then as now. He called on the Chamber to defeat the Ministry. M. Briand declared in reply that the government had acted as vigorously as possible, and that in the affair of Grande Chartreuse in regard to which it had been criticised the government could not act sooner because the case was in the courts, but if crime were revealed it would take prompt action. He called on the Chamber for a vote of confidence, which was granted with acclamation. The result of the liquidation scandal was the introduction of a bill for the dismissal of the present liquidators and the transfer of their duties to the director-general of the public domain, allowing the dismissed officials three months in which to put their accounts in order. The measure was carried toward the end of March.

**THE VATICAN AND MODERNISM.** The Pope continued to maintain the same general attitude toward modernism that had been shown in the recent succession of Encyclicals. In a letter addressed to the French cardinals, archbishops and bishops, published in August, the Pope condemned the organization known as the Sillon, a group of Christian Democrats among the young Roman Catholics, organized during

the pontificate of his predecessor. Their object was to reconcile the people with the Roman Catholic Church, and although they did not definitely announce themselves as Republicans, their language pointed to this and marked them off from the reactionary members of the Roman Catholic Church in France. The strictly orthodox element finally prevailed upon the Pope to pronounce against them. His letter condemns the independent course taken by the Sillon Society and accuses its members of trying to apply the philosophy of the 18th century by destroying class distinction and suppressing authority, thus upsetting the natural and historical foundations of society. The agitation can, he says, benefit only Socialists. It is contrary to the traditional policy of the church and it is based on the error that religion may be allied with a political party, that is, the Democracy, as that party was especially favorable to the church, and he warned the French priesthood against this mirage of a false democracy and urged them not to use the language of their enemies, "emphatic utterances full of promises, which are as sonorous as they are impracticable." He added that "the real friends of the people are neither revolutionaries nor innovators, but traditionalists."

Another measure which caused ill feeling among the advanced churchmen in France was the decree fixing the date of the first communion at about the age of seven. This change caused much concern among many of the priests, for in France it had become a strongly entrenched national custom that the child should partake of its first communion at an age sufficiently advanced to mark its entrance into the conscious life of the family. The dissatisfaction caused among the clergy by changing the date of the first communion was prompted in part by the fear that the only means of securing a religious education of the young might thus be destroyed. Another cause of discontent in the priesthood was the announcement that the Vatican was about to consider the issuing of a decree refusing Christian burial to any person who had not confessed and received communion at Easter.

**PARIS FLOODS.** One of the worst floods in the recent history of France occurred in January, 1910, owing to the heavy rains and the rising of the various rivers. The valleys of the Marne, Loire, Indre, Aube, Yonne, Aisne, Meuse, Moselle and Doubs were soon flooded. The Yonne and Marne rose at the same time, and before their waters subsided a heavy rain in the valley of the Yonne caused a second rising, which swelled the waters of the Seine and so caused the flooding of Paris. By January 23 the waters had submerged many of the electric and hydraulic power stations in the city and caused great damage to the electric light plants and the railway system, especially the underground electric railways. Considerable loss of life was reported in the provinces and the railways were rendered useless in many districts, extensive lines of track being submerged and many bridges and dikes carried away. In the last week of January it was reported that nearly half of the country was under water and the floods were still rising. In Paris the Seine rose so high that soon hardly any daylight was visible through the arches of the bridges and their parapets were only a few feet above the water. On January 26 the Seine was 26 feet deep at the Pont Royal and the water

was still rising. On January 29 it reached its highest point, 31 feet, and thenceforth gradually subsided. There have been serious floods in Paris in very early times. A noteworthy flood was that of 1615, when the depth at the Pont Royal was recorded as 32 feet. In the 19th century the water rose to an alarming height on 10 occasions, the most serious flood occurring in 1876. But the depth at the Pont Royal in the present flood exceeded that recorded for 1876. In Paris it was reported that 200,000 persons were in distress, many being driven from their homes. Nearly one-half of the city streets and squares were under water and most of the others had water under them. The government acted with great vigor. Large bodies of troops and civilians were employed in building dikes to hold back the water. At one time the Chamber of Deputies was almost surrounded by a lake and the riverside along the Champs Élysées to the west of the Place de la Concorde was under water. On the 28th the waters reached as far as the Boulevard des Italiens. Many of the streets were closed, and eight out of the ten bridges. Considerable damage was done to the Louvre. On January 30, M. Briand declared that the situation was improving. The authorities were successful in suppressing the ravages of the disorderly element and in carrying on the work of relief. The state supplied considerable sums for relief work and much was derived from the generosity of foreign governments. The losses throughout France were roughly estimated at from \$200,000,000 to \$300,000,000. In his speech on February 9 the Premier summed up the results of the flood, and in so doing referred to the fact that it had revealed a feeling of unity among all classes in France, as well as a strong spirit of self-sacrifice. Party differences were sunk in the presence of a great calamity and all classes worked together for the prevention of further damage and for the relief of distress. He also referred to the generosity of foreign nations and the good work done by the Red Cross Society.

**THE ELECTIONS.** Parliament adjourned on April 8 to meet on June 1, and the elections were held in the two weeks following April 24. M. Briand opened the campaign by a speech at Saint Chamond, in which he defended the government's policy toward the church, saying that it had entered upon its course for the separation of Church and State not in a spirit of hostility but of liberty and tolerance and that it did not desire to prosecute anyone but aimed at peace and conciliation. As to the political programme for the future Parliament he mentioned the following features: Electoral reform, administrative reform, extension of the legislative mandate, the statute of functionaries prohibiting their right to strike and freeing them from the influence of politicians. His speech was interrupted by a violent outbreak on the part of Socialists, who threw stones into the banquet hall. The chief matters discussed in the campaign were the conflict between the clergy and the government on the question of education, the new taxes in M. Cochery's budget, secret ballot, proportional representation, and naval improvement. The elections showed an increase in the strength of the Socialists and of the Republicans of the Left. The Radicals and Radical Socialists were reduced from 269 in the former Parliament to

252. The Reactionaries, however, were cut down considerably, being 80 in the Parliament that had just closed and 71 in the new body. The figures as published soon after the election, with official sanction, but criticised by some of the groups as incorrect, were as follows: Reactionaries, 71; Nationalists, 17; Progressists, 60; Republicans of the Left, 93; Radicals and Radical Socialists, 252; Independent Socialists, 30; Unified Socialists, 74. In the previous Parliament the Independent Socialists had numbered only 29 and the Unified Socialists, 55. The personnel of the new Chamber was greatly changed, 235 new deputies having been chosen.

Parliament met on June 1, and M. Brisson was elected President of the Chamber. On June 9, M. Briand outlined the ministerial policy. As to electoral reform he said that it must aim to place general interests above local by means of an enlarged ballot, the *scrutin d'arrondissement* having resulted in abuses. It was not only just but essential in parliamentary government that while the majority had the preponderance to which it was entitled, the views of the minority should make themselves known. The reform also aimed at the renewal of the Chamber by thirds and with a longer mandate. He also referred to the need of an income tax, improved budget methods, judicial and administrative reforms, an adequate naval measure and of granting corporate rights to trade unions. Little legislation was finished during the summer session. The Electoral Reform bill was presented on June 30. The plan comprised three changes, namely, a return to the *scrutin de liste* in place of the present *scrutin d'arrondissement*, proportional representation, and renewal of the Chamber by sections every two years, each deputy to hold his office for six years. The budget for 1911 was presented on June 28. The revenue was estimated at \$850,000,000, the deficit at \$40,000,000, to meet which were proposed higher taxation of estates of persons with fewer than three children, and higher registration and stamp duties. The need of reducing expenditures was strongly urged. The government also introduced its bill providing for the corporate responsibility of trade unions. The latter might make collective contracts with employers, were to be liable to actions for damages for breaches of such contracts and were to be both corporately and individually responsible. Parliament adjourned on July 12 to meet on October 25.

**THE ROCHETTE AFFAIR.** In March, 1908, M. Rochette, a banker, was arrested on the charge of embezzlement and the promotion of swindling schemes. It was alleged that the arrest was due to the action of private persons, who, although they themselves had no ground of complaint, were instigated by the police to start judicial proceedings. The Prefect of Police was sharply criticised for departing from regular judicial action and hunting for a plaintiff outside, and it was said that he had received instructions from the late Prime Minister, M. Clemenceau, who was charged with practically reviving the principle of the *lettre de cachet*. This caused an interpellation in the Chamber by MM. Jaurès and Leboucq on July 11. M. Jaurès made a violent attack on the Prefect of Police, whom he accused of illegal plots for the purpose of accomplishing the prisoner's arrest. M. Briand defended the Pre-

fect, saying that the judicial authorities could not prosecute except on the basis of a formal plaint, and that M. Lepine had merely done his duty in seeking among the numerous victims of Rochette someone who would assume responsibility for a formal charge. M. Jaurès had said that the police were in collusion with a man who had presented a false plaint. M. Briand replied that he had no right to say this unless he could bring proof. The affair brought up the old question of legal stock exchange speculations. It led to the repeated charge that certain persons associated with the government had been speculating at the Bourse on the basis of the evils which would result in their own exposures of M. Rochette's frauds. The question now arose as to the appointment of a parliamentary committee for the investigation of this and other charges and rumors. M. Briand declared that such a committee of inquiry was, in his opinion, an encroachment on the judicial authority, but if the government received in advance a vote of confidence as to its declaration, he did not object to such a committee. The government received a vote of confidence and the Chamber went on to appoint a committee of 33 for this investigation. M. Clemenceau, who appeared before the committee in October, denied that he had given any instructions to the Prefect of Police, M. Lepine, to find a prosecutor of M. Rochette, but had told M. Lepine to see the judicial authorities and take instructions from them. M. Lepine appeared before the committee in the Rochette affair on November 22, and admitted that he had sought for a private prosecutor to bring charges against M. Rochette. He also declared that, according to his recollections, M. Clemenceau had told him to take this course, and further said that it was customary for the Prefect of Police, and in fact an every day matter, to seek out a private prosecutor in such circumstances.

**THE GREAT RAILWAY STRIKE.** On October 11, one of the most threatening strikes of recent years was declared on the Northern Railway. It tried the power of the government to the utmost and led to a definite stand on the important question of the relations of the state to labor, particularly as regards the right of civil servants to go on strike. The government's summary solution of the question made it one of the most significant strikes of recent years. In April, 1910, the demands of the men were set forth in a congress of railway employes in Paris. On the Northern and Southern systems the men demanded an increase of wages to a minimum of 5 francs. There were, however, many other grievances, varying with the particular circumstances in the privately owned companies. The congress decided to ask the government to appoint a conference between the directors of the companies and the men, and threatened that if the companies did not accede to the demands of the men they would attempt a general strike. This threat having failed to accomplish any definite result, the General Confederation of Labor organized a general strike which took place at the end of May on the Southern railways. These lines were thrown into complete confusion, some 10,000 men having gone on strike. A provisional agreement was made between the companies and the men early in June and work was resumed. Thereupon the General

Confederation of Labor endeavored to arrange a strike on the Northern lines. The movement for a general strike was becoming formidable early in July, for although there seemed to be a desire for mutual understanding on the part of individual companies and men, the National Union of Railway Men adhered to an uncompromising attitude. Moreover the railway companies refused a conference with the union in the presence of the Prime Minister and the Minister of Public Works, alleging that, while they were ready to consider the complaints of their own workmen, they must do so individually and could not take part in a general conference. Thereupon the Railway Men's Union passed a resolution authorizing the strike committee to name a day as soon as possible for a general strike as a retort to this disdainful refusal of their request for a conference. Between that time and October the more aggressive element repeatedly demanded a strike, but the committee took no action. The way was opened for a general strike by the men in the station of the Northern Railway at Saint Denis early in October, and finally on October 11 a general strike throughout the entire Northern Railway was declared. The military was promptly called out and two companies of infantry occupied the Gare du Nord. Before the end of the day, traffic on the entire line was at a standstill. A Cabinet meeting was held on the same day and the strike was characterized by M. Briand as political and revolutionary rather than economic in character. He declared that despite its suddenness the government had taken energetic measures for the guarding of the line and would readily put down any attempts at sabotage. There was great danger of interrupting the food supply to the capital and the government took precautions to avert it. They also called out the troops at various points along the railway. The Nord Company made a statement immediately after the strike had broken out saying that they had been paying the required minimum wage in the Paris region since July, that other demands of the workmen concerned their railway no more than any of the other companies, and that, as to the further increase of salary, the Nord Company had already paid out during 1909 and 1910 a considerable sum beyond the usual increase. Acts of violence took place at several points and some damage was done to railway property. Those men who remained on duty were attacked by the strikers in an endeavor to terrorize them. The men's grievances were set forth at the same time. They asserted a legal right to cease work in the first place, and said that they had done so because they were weary of waiting for the fulfillment of promises. They accused the government of subordinating their interests to those of the financiers who controlled the lines and complained of exclusion from the benefits of the law that enforced one day of rest in the week. They also contrasted the large amount paid to the shareholders of the Western Railway with its refusal to give the workers their minimum wage. On October 12, the strike committee of the National Confederation of Railway Servants called a general strike on all the railways. Immediately afterwards work came to a standstill on the Northern and Western state lines.

**THE GOVERNMENT'S ACTION.** The Ministry

took an unprecedented but effective measure to end the strike. On October 12 it issued mobilization orders to some 30,000 employees of the Nord line commanding them on the following day to join the colors for three weeks' military training. They were liable to this military duty as French subjects and were thus confronted immediately with the choice between allegiance to their own government as Frenchmen, and obedience to their strike leaders as members of the union. The military duty to which they were summoned consisted in the maintenance of the line in normal working order and in obeying the orders of their official superiors. Disobedience would entail punishment as military defaulters. The government at the same time published a general decree changing the classification of the reservists of the railway regiment. This provided that the class hitherto called unattached reservists, who, upon receiving the order to mobilize, would merely have had to hold themselves at the disposal of the War Minister, should be attached to the field companies. Thus the government seized a strong weapon for forcing the return of the strikers. Soon afterwards several portions of the line were said to be in running order. For some time, however, Parisian consumers suffered from a shortage of the food supply. M. Briand explained the course of the government to members of the press immediately after the issuance of the mobilization orders. He said that he had had to deal not with a strike in the ordinary sense of the word but with a criminal outbreak and practically with an act of rebellion. He regarded it as a breach of faith that the men should quit work when he had received their representatives in the name of the government and had asked them only a few days before to present their claims, saying he would examine them. Moreover, the claims as to the minimum wage had, in a majority of cases, been satisfied, and at that very moment another of the men's demands, namely, for changes in the hours of labor, was under the joint consideration of the union leaders and the Ministry of Public Works. In spite of these negotiations a strike had been declared without warning and was marked by acts of criminal violence. The government showed a firm front and a determination to carry out its mobilization order with the utmost strictness. There was much public sympathy with the strikers at first, but later a feeling of resentment spread as the course of the strikers became known and as the bad results came home to the people. The mobilization order was received by the men of the Nord and also of all other lines except the Midi on October 13. Meanwhile the employees of the Paris-Lyons-Mediterranean and Orléans companies decided to go on strike. Five of the chief leaders of the railway strike were arrested on October 13 and many others were threatened with arrest. As to the food supply, M. Briand publicly announced on October 13 that Paris would be adequately provisioned. It was soon evident that the strike would not become general. By the afternoon of October 13 many passenger trains were running from the Northern Station and the main service of the Western State Railway had been resumed. The Unified Socialists violently criticised the course of the government and demanded that the Chamber be immediately convoked.

The Strike Committee of the Railway Men declared on October 18 that the strike was at an end. As to public opinion, it seemed to strengthen toward the view of the government, that is, that the railway strike was an act of criminal violence. The Socialists, however, continued to condemn its course.

**PARLIAMENTARY DISCUSSION OF THE STRIKE.** Hardly had the Chamber assembled when the Opposition began to interpellate the government on the strike. In the debate which followed, beginning on October 25, the Socialists displayed much passion and expressed themselves in very violent language. On that day the Chamber was temporarily suspended on account of the disorderly demonstrations. M. Briand forcibly defended the course of the government, persisting in his speech in spite of repeated efforts to drown him out on the part of the Socialists. He repeated what he had already said, namely, that the government was not dealing with a strike, but with an anarchistic outbreak, and that he had evidence of an organized plan for sabotage, and that there was no other course for the government to take, confronted as it was by civil war.

In the session of October 29, M. Briand caused a storm in the Chamber by boldly announcing to the Socialists that "if the government had not found in the law that which enabled it to remain master of the frontiers of France, and master of its railways, which are indispensable instruments of the national defense, if, in a word, the government had found it necessary to resort to illegality it would have done so." There was immediately an outbreak of fury among the Socialists and cries of "Dictator, resign!" The tumult lasted for an hour. Meanwhile, M. Briand continued to speak to those about him and an official report of his address was taken. He went on to say that he had acted on the true doctrine of the French Revolution and that the members of the Extreme Left ought to acknowledge and respect it. This was the doctrine *Salus publica suprema lex*. On the following day he again addressed the Chamber, pleading with the members of the Extreme Left to listen to reason. What he had said in the heat of debate did not indicate any intention on the part of the government to violate the law or resort to a dictator. It meant simply that in so serious a crisis the government was obliged to adopt severe measures. He concluded with the words, "I ask your judgment; I take entire responsibility. If you say that you have not confidence in the government, why then the 'Dictator' will at once bow to your decision." Thereupon a vote of confidence was taken, which showed a complete defeat of the Anarchist Left and the Socialists, the government receiving 329 votes against 183.

A meeting of the Cabinet was held on November 2, at which M. Briand declared that he had been publicly accused of designs against the liberties of the nation. His Ministry having been called into question in this manner he believed that the proper course was to allow the President of the Republic to consider whether he should be upheld or not. He believed that the whole Cabinet ought to tender its resignation. Thereupon the Ministers all signed their resignations. Later M. Briand was summoned by the President and entrusted with the formation of a new Ministry. The follow-

ing members of the former Cabinet were retained: M. Pichon, Minister of Foreign Affairs; General Brun, Minister of War, and Vice-Admiral Boué de Lapeyrère, Minister of Marine. In general the other members had not previously held Cabinet positions. The programme of the new Ministry comprised electoral, administrative, judicial and social reforms, the last named including certain changes in the legal status of trade and labor unions and the establishment of a form of optional profit sharing. The main aim of the government, however, was the settlement of the issue raised by the strike. The Ministry was in full harmony with M. Briand on the principle that public servants must be required to discharge their duties regularly and without interruption. In the debate which followed the ministerial declaration of policy, the Socialist leader, M. Jaurès, made a sharp attack upon the government's course and vindicated his own position. A vote of confidence showed a reduced government majority of 87.

On November 15 M. Briand explained in a Cabinet Council the proposed legislation concerning the status of workmen in the government employ. It comprised measures for instituting a permanent conciliation board, comprising representatives of the railway companies and employees, and for a council of arbitration; prohibiting any strike if arbitration is not accepted or while the negotiations are in progress; amending the army law of 1905 so as to give the government authority to requisition railway servants if need arises; giving the government authority also as regards other public services affecting the national safety or health; finally, measures providing for strict repression of sabotage and for policing of railways.

**OTHER EVENTS.** A serious strike broke out among the seamen at Marseilles at the beginning of April which caused great loss to trade at the port. The attempt, however, to turn it into a general strike failed, the confederated trade and labor unions, in spite of the demands of their leaders, having refused to renew the general strike. At the end of April a serious strike took place at Dunkirk in which 25,000 men went out. Some rioting occurred and a number of arrests were made, resulting in the sentence of the strikers to heavy terms of imprisonment. To avoid danger of public disturbance on May-day in Paris large bodies of troops and police were assembled and finally the labor leaders decided to abandon the May-day demonstration, the Minister of the Interior and the Prefecture of the Police having announced the intention of the government to repress rigorously any disturbance.

Of late years France has suffered many marine disasters and her already long list of fatal accidents was increased in 1910 by the sinking of the submarine *Pluviose*, near Calais, with a loss of 27 officers and men. An impressive funeral ceremony took place in Paris on June 22 when the President of the Republic paid a tribute to the heroism of those who had attempted to save the doomed vessel.

Serious rioting took place in the Faubourg Saint Antoine quarter of Paris on June 26, resulting in the injury of over 40 policemen. Revolutionary members of the General Confederation of Labor took occasion at a funeral of one of their comrades to make a demonstration against the police, with whom they came

into collision on returning from the cemetery.

There was some opposition to raising the new Hungarian loan in France and there was a question whether such a loan could be admitted to quotation on the Bourse until the holders of certain Austro-Hungarian securities were indemnified for their depreciation. The Turkish overtures for a loan were refused, but Turkey continued to press the matter and it was reported that arrangements for such a loan had been made with a group of French bankers. A Franco-British syndicate agreed upon a loan for Greece.

The cost of living was a subject almost as widely discussed in France as in the United States. The General Confederation of Labor started in the summer an active campaign on the subject. At a meeting toward the end of August, the government was urged to abolish the corn duty for two days, and a resolution was passed threatening violent action unless something were done to improve the situation by lowering prices.

**FRANCE, ANATOLE.** See **FRENCH LITERATURE.**

**FRANCHISES, MUNICIPAL.** See **MUNICIPAL GOVERNMENT.**

**FRANCIS-JOSEPH.** See **AUSTRIA-HUNGARY.**

**FRANCK, H. A.** See **LITERATURE, ENGLISH AND AMERICAN, Travel and Description.**

**FRANKLIN, FABIAN.** See **LITERATURE, ENGLISH AND AMERICAN, Biography.**

**FRASER, J. F.** See **LITERATURE, ENGLISH AND AMERICAN, History.**

**FRATERNAL INSURANCE.** See **INSURANCE.**

**FRATERNAL ORGANIZATIONS.** See **INSURANCE.**

**FRATERNITIES.** See **UNIVERSITIES AND COLLEGES.**

**FREE TRADE CONGRESS.** See **TARIFF.**

**FREIGHT RATES.** See **RAILWAYS.**

**FREMIET, EMMANUEL.** A French sculptor, died September 11, 1910. He was born in Paris in 1824. He exhibited his first work, "The Gazelle," in 1843. This was followed by a group of animal studies, of which "The Mother Cat," "A Wounded Dog," and "Group of Dogs" were bought by the state. In 1850 his "Wounded Hound" made a remarkable impression. From this time on he exhibited constantly. In 1875 he succeeded Barye as professor of drawing and molding at the Jardin des Plantes. His famous "Gorilla Carrying off the Body of a Woman," refused at the Salon in 1859, received the medal of honor in 1887. He received the grand prize at the exhibition of 1900. He was considered by many to be superior to Barye in his animal studies, and his knowledge of anatomy and the power and realism of all his works were notable. Among his best-known sculptures, in addition to those mentioned above, the "Faun," in the Luxemburg, "Jeanne d'Arc," in the Place des Pyramides, and an improved version of the same subject which is now in Fairmount Park, Philadelphia, "Velasquez on Horseback" and the statue of de Lesseps at Suez. His extensive exhibit at the St. Louis Exhibition in 1904 attracted much attention.

**FRENCH, SAMUEL GIBBS.** An American soldier, died April 20, 1910. He was born in Gloucester county, N. Y., in 1818, and graduated from the United States Military Academy in

1843. He served until 1856 in the United States Army, when he resigned after having reached the grade of captain. He saw service in the Mexican War and took part in several important battles. Previous to the outbreak of the Civil War he was colonel and chief of ordnance of the army of the State of Mississippi. He was commissioned brigadier-general of the Confederate Army in 1861, and was made major-general in 1862. He served in the Army of Northern Virginia from 1861 to 1863, and in 1862 commanded the Department of North Carolina and Southern Virginia. In 1863 he was sent to join Gen. Joseph E. Johnston in Mississippi. He took part in many important engagements, including those at Kenesaw Mountain and Jackson, Mississippi. After the war he engaged in business as a cotton planter. He was the oldest Confederate general at the time of his death.

**FRENCH, WINSOB B.** An American soldier, died March 24, 1910. He was born in 1833 in Proctorville, Vt. He graduated from Tufts College in 1859. In the Civil War he was colonel of the 77th New York Volunteers and was breveted brigadier-general for bravery on the field at the battle of Cedar Creek. After the war he practiced law in Saratoga, N. Y., and in 1868 he was appointed district-attorney for that county. While he was in this office he attained wide prominence in 1879 by subpoenaing to appear before the grand jury of Saratoga county Henry Ray, a member of the Assembly, who refused to appear. On the application of General French, an attachment was issued and Ray was arrested. General French was thereupon summoned to appear before the Assembly for high breach of privilege in offending the dignity of the House by arresting one of its members. General French appeared, and after his appeal before the Assembly, a resolution was adopted discharging the action. This is known as the famous "breach of privilege" case. Since that time no State legislature has ever undertaken to interfere with the jurisdiction of the courts.

**FRENCH ACADEMY.** See **ACADEMY, FRENCH.**

**FRENCH ARCHITECTURE.** See **ARCHITECTURE.**

**FRENCH CONGO.** See **FRENCH EQUATORIAL AFRICA.**

**FRENCH EQUATORIAL AFRICA.** A French possession extending along the west coast of equatorial Africa, between the Belgian Congo and the German Kamerun protectorate; and made up of three colonies: the Gabun Colony (area, 120,745 square miles; population, 4,000,000; capital, Libreville), the Middle Congo Colony (170,255 square miles; 3,000,000 inhabitants; capital, Brazzaville), and the Ubangi-Shari-Chad Colony (Ubangi-Shari 154,400, Chad 223,800 square miles; population, 2,000,000 and 1,000,000; capital, Fort-de-Possel); known till 1910 as the French Congo. The Chad region is for some purposes administered as a territory. Total area, 669,280 square miles; total population, 10,000,000, mostly negroes. There are 53 mission schools, with about 3600 pupils. Valuable woods are contained in the forests, and rubber is collected. Gold, copper and iron are found; chalcosine is mined at Mindouli. Imports (1908), 10,028,000 francs (France, 4,207,000); exports, 16,802,000 (France, 7,420,000). Vessels entered, 82, of 118,000 tons. Loango is an important port. The projected railway from

Libreville to the Congo is expected to develop the country. Telegraph lines, 870 miles. The budget for 1907 balanced at 6,472,000 francs. French expenditure in 1910, estimated at 6,422,000 francs. Debt, 1,706,000 francs. Military force, 4177 (322 Europeans). The Middle Congo has an administrator-in-chief, the other colonies have lieutenant-governors; all are under the control of the commissioner-general (1910, M. Merlin). The name French Congo was changed by decree in 1910 to French Equatorial Africa, and various details of administration will be altered.

A convention for the delimitation of the Congo-Kamerun frontier was signed April 18, 1908.

The state of KANEM northeast of Lake Chad (capital Maô), is a district of the Shari region; WADAI (area), 170,000 square miles; population, 2,000,000; capital, Abeshr, east of Kanem, is also a French protectorate.

Lieut. Boyd Alexander, the well-known explorer, was murdered by natives in Wadai, April 2, 1910. In February, 1910, the news came of a massacre of Senegalese troops under French command, a column of 109 men and four French officers having been ambushed and almost completely destroyed. A punitive expedition was sent early in 1910 into the Dar Tama region. This was entirely successful, defeating the natives at Agredah with a loss of about 100.

Arabs attacked a body of French native auxiliaries at Daffa to the north of Lake Chad and were defeated after four hours' fighting, with a loss of 100 killed and 37 wounded, while the French loss was but 9 killed or missing and 19 wounded.

Early in November it was reported that a massacre of French soldiers and officers had taken place at Abeshr in Central Africa and that the tribesmen had pillaged the French posts and driven out the garrisons. They had captured guns and some ammunition.

**FRENCH ESTABLISHMENTS IN OCEANIA.** A French colony composed of widely scattered islands and groups of islands in the southern Pacific, having a total estimated area of 1520 square miles and a population of 30,563, mainly Polynesians. Of the Society Islands, the most important are Tahiti (area about 600 square miles; population, 11,691) and Moorea (50 square miles; 1564 inhabitants). The Marquesas Islands have an area of 480 square miles; population, 3424; largest islands, Nukahiva and Hivaœa. Other groups are the Tuamotu group (3828 inhabitants); the Leeward Islands (Isles sous le Vent), of which Huahine (1230 inhabitants), Raiatœa and Tahaa (3347), and Bora-Bora-Maupiti (1295) are the most important; the Gambier Islands (1533), of which Mangareva is the principal; the Tubuai Islands (Rurutu and Rimitara the largest); Raivavae; and Rapa. Papeete, on the island of Tahiti, is the capital and chief town. Total schools (1909), 55; teachers, 69; pupils, 2761. The table of exports shows the staple products. Total imports and exports (1909), 4,612,930 and 5,051,442 francs respectively, against 3,867,863 and 3,145,326 in 1908. Imports in 1909 consisted of animals and animal products, 605,634 francs; cereals and vegetable products, 1,361,666; minerals and metals, 260,974; manufactured articles, 2,384,656. A comparative table follows, showing the principal products and quantities exported in 1908 and 1909.

	1908		1909	
	1000 kilos	1000 francs	1000 kilos	1000 francs
Copra .....	4,116	1,153	8,137	2,685
Vanilla .....	173	694	207	1,034
Mother-of-pearl ...	632	790	587	764
Raw cotton .....	15	30	72	108
Cocoanuts .....	...	81	.....	91
Oranges .....	...	42	.....	58
Seaweed .....	29	27	17	17
Trepang .....	37	37	10	10
Beeswax .....	3	7	3	7

Countries of origin and destination (in thousands of francs):

	Imports		Exports	
	1908	1909	1908	1909
United States.....	1,783	2,093	1,605	2,864
New Zealand .....	774	987	764	687
France .....	615	797	58	584
Great Britain.....	434	412	209	334
Germany .....	76	140	142	115
Others .....	208	234	369	467

Vessels entered (1909), 51, of 87,338 tons; cleared, 51, of 87,228. Revenue and expenditure (1909), 2,410,626 and 2,213,645 francs respectively; subvention, 150,000 francs. Governor (1910), Adrien Bonhoure.

**FRENCH GUIANA, or CAYENNE.** A French colony and penal settlement on the northeast coast of South America. Area, 34,061 square miles; population (1906), 39,349. Cayenne (chief town and sole seaport) has 12,426 inhabitants. Penal population (1908), 4412 transported and undergoing reclusion; 2700 recluses; 1065 freed. Primary schools, 24, with about 2230 pupils; there is a college at Cayenne. Rice, corn, manioc, cacao, coffee, sugar-cane, indigo, tobacco, and gutta-percha are produced. Under cultivation, 8800 acres. Placer gold-mining is carried on; 4098 kilograms (worth 11,065,000 francs) were declared for entry at Cayenne in 1908. In 1908, 336 vessels, of 50,262 tons, entered. Imports and exports (1908), 12,169,000 and 12,852,000 francs respectively. The local budget for 1907 balanced at 3,497,000 francs. Debt, 76,000 francs. The colony is administered by a governor (1910, M. Samary).

**FRENCH GUINEA.** A French colony in French West Africa (q. v.). Area, 254,000 square kilometres (98,000 square miles). Estimated population (1908), 1,734,024. Capital, Konakry, with 10,077 inhabitants. There were in 1908 27 official schools, with 1595 pupils; 3 private, with 92; 3843 Mussulman, with 23,754. The main products, with export values in 1908, are given as follows: rubber, 10,876,604 francs; live animals, 1,667,213; animal products, 791,229; palm kernels; 701,989; copal, 438,111; peanuts, 204,361. Total imports and exports (1908), 14,253,442 and 15,509,532 francs respectively. Vessels entered, 613, of 42,567 tons; cleared, 613, of 7739. The Konakry-to-Niger railway is open as far as Mamu, 337 kilometres; under construction, 229. Telegraph lines, 2800 kilometres; telephone, 75. Number of post and telegraph offices, 31. Revenue in 1908, 6,610,279 francs (direct taxes, 4,791,950 francs; patents and licenses, 303,053; posts and telegraphs, 129,799; etc.); expenditure, 6,100,628. The colony is administered by a lieutenant-governor (1910, V. T. Liotard), under the direction of the governor-general of French West Africa. The jetty, 1066 feet long, at Konakry, has been completed.

**FRENCH INDIA.** The French possessions in India consist of five separate dependencies, with an aggregate area of 198 square miles; population (1906), 277,723. The towns are Pondichery (the capital), Karikal, Mahé, Chander-nagar, and Yanaon. Birth rate at Pondichery (1907), 33.14, death rate, 49.22 per 1000. Schools (1907), 340, with 584 teachers and 18,914 pupils. Paddy, groundnuts, and ragi are grown. There are 4 cotton mills, with 1357 looms and 68,130 spindles, employing 6200 persons. There are also two oil factories, an ice factory, and a co-coatine factory. Imports, 1908 (raw cotton, seeds, and pulse), 8,937,000 francs; exports (cotton goods, groundnuts, and oil cakes), 27,048,000. Vessels entered (1907), 385, of 751,000 tons. Railways (1908), 30 miles. The budget (1907) balanced at 2,397,000 francs; debt, 796,000. The colony is administered by a governor (1910, F. E. Leveque).

**FRENCH INDO-CHINA.** A French dependency in southeastern Asia composed of five states: Annam, Cambodia, Cochín-China, Tongking, and Laos (qq. v.). Collective area, about 309,979 square miles; population, 16,315,063, mainly Annamites. Capital, Hanoi, in Tongking (103,238 inhabitants). Rice, corn, pepper, silk, cotton, tea, sugar, rubber, and tobacco are grown. The mines yield coal and lignite, zinc, antimony, tin, wolfram, and gold. Output, 1908: 329,000 tons coal (3,306,000 francs), 18,000 tons lignite (152,000 francs), 12,000 tons zinc ore (1,205,000 francs), 164 tons tungsten and tin (307,000 francs), 170 tons gold ore (340,000 francs). About one-fifth of the foreign trade is transit, passing to and from the Yunnan treaty "port" of Meng-tsze through Tongking. Total imports and exports (1909), 251,997,750 and 265,457,000 francs respectively. Export of rice in 1908, 1,214,512 metric tons. Vessels entered (1908), 2139, of 2,020,004 tons (1134 junks, of 25,598 tons). Total length of railways, 811 miles. In May, 1909, the railway to Yunnan-fu was opened as far as Meng-tsze, and was to be completed in 1910. The Chinese granted (1908) the right of an extension to Singan. Telegraph lines, 8563 miles; offices, 328. Telephone lines, 270 miles. Post-offices, 264. There are separate budgets for the several states, and a common budget for Indo-China. The general revenue (mainly from customs, excise, etc.) amounted in 1909 to about 47,500,000 dollars Mexican. Expenditure of France (1910 budget), 13,282,490 francs for Cochín-China, 24,765,655 for Annam and Tongking, chiefly for military purposes. Troops (1909), 12,042 European, 14,492 native. Naval force, 1 armored battleship, 3 armored cruisers, 3 protected cruisers, 4 destroyers, 1 armored gunboat, 12 torpedo boats, 4 submarines, and a number of small vessels, with about 4500 men. A governor-general (1910, A. Klobukowski) administers the country. A superior council, consisting of the administrative heads of the subordinate colonies, with the military and naval commanders-in-chief and representatives of commerce, agriculture, etc., controls financial affairs, both general and local. The colony is one of the most prosperous of the French possessions. It is represented at Paris by one senator and one deputy.

KWANG-CHOW-WAN (q. v.) is under the authority of the governor-general of French Indo-China.

**FRENCH LITERATURE.** Ever since 1907 we have noticed a great readiness on the part of

the French writers to rest after years of turmoil in their country. Even when the separation of Church and State became an accomplished fact the event was not reflected in literature as it undoubtedly would have been if every one had not felt the need of a period of recovery. The year 1909 was called here one "of general goodwill"—so was 1910; with this difference, that while in 1909 one felt still reminiscences of earlier discussions, they were felt by the efforts made to forget them; in 1910 there is not even that to remind one of days of misunderstanding. Such men as Capus or Tristan Bernard with their optimistic fatalism, or Zamacois with his efforts to see life from a poetical point of view, reflect best the present state of mind, while even the amiable skepticism of Anatole France is too biting at times.

**THE THEATRE.** As in previous years we supplement here only what is said elsewhere about the drama of the year. Most successful plays in France were of the lighter kind. A. Capus's *L'ange* and *L'aventurier* show, the one with a woman as a hero, the other with a man, that life after all may be depended upon to come out all right. The "Angel" (ironical title) loves twice very different characters, and then falls to the lot of a third one who has just the right temperament to stand her nature. The "Adventurer" is a self-made man who conquers the prejudices of his dignified family. The same amused optimism is found in Tristan Bernard's *Danseur inconnu*, and in his more sarcastic *Peintre exigeant*. Courteline's funny *Boubouroche* is worthy of the author's fame. Zamacois' *Fleur merveilleuse* is a poetic and delicate fancy like the *Jesters* and has the same theme as Daudet's *Arlesienne*, but not in the tragic vein. More aggressive is the fantastic in Rostand's *Chantecler*, which was attacked so savagely by the press in France that one cannot but suspect personal feelings of jealousy inspiring some of the critics. Of the dramas few deserve mention. Bataille's sensationally psychological *Vierge folle* was disappointing to the author's admirers; Americans have seen in translation the story of this neurasthenic girl ending by suicide. Pierre Wolf's *Les Marionnettes* (marionettes of love) strikes the same note. Bourget has the only thesis drama worth discussing; his *Barricade* defends conservative views regarding the social problem, social hierarchy is justified, and the only principle of social order.

Two posthumous plays of great import were put on the stage: *L'école des Ménages*, by Balzac—a household, threatened in its existence by a fancy of the hero for his first shop-girl, gives Balzac an opportunity to assert his views regarding the sanctity of marital ties. *Polichinelles* by Becques, is realistic drama underlining as usual all that is bad in man. Among the novels that went on the stage are Balzac's *César Birotteau* (staged by Fabre) and Prevost's *Pierre et Thérèse* (see YEAR BOOK (1909)). There was an interesting Shakespeare revival in France. The "Théâtre français" gave *Hamlet*, the "Odéon," *Jules César*, and the theatre "Femina" gave very successful fortnightly Shakespeare evenings (*Tempest*, *Midsummer Night Dream*, *As You Like It*, *Troilus and Cressida*, etc.). At Orange this summer the actors of the "Français" gave *Alkestis*, by Rivolet (the third year) *Le Cid* and *Hamlet*. A rather amusing performance was that of a young playwright, René Fanchois (author of *Beethoven*—see YEAR BOOK,

1909), who in a public lecture at the "Odéon" furiously attacked Racine. The students stood by Racine.

Le Bargy has resigned from the Comédie française (or had to). The *Mémoires of Got* have aroused great interest; also a *Vie sentimentale de Rachel*, which was published by Mlle. V. Thomson.

POETRY. The unusual quantity of poetry published in 1910 confirms what we said at the beginning of this article, that people in France wanted to turn their thoughts away from the battles of real life. Many of the best-known poets of France have published verses: Fernand Gregh, *La chaîne éternelle*, a sort of "Légende des siècles" of human progress as seen by a man of the Twentieth Century; St. Merrill, *Une voix dans la foule*; Em. Bergerat, *Ballades et Sonnets*; L. Tailhade, *Poèmes élégiaques*; Z. Bois, *L'humanité divine*, (divine, because suffering ennobles it). Other names not so well known, but deserving to be mentioned are: L. Bocquet, *Les branches lourdes* (which are the heavy thoughts that weigh on the soul, but they are conquered by love); A. Delacour, *Le rayonnement*—higher joys of life; P. Bonetti, *Les orgueils* (pride when one does something to uplift humanity). G. Sorbet in *Le Soleil de rêve* dreams of nations freed of war; Vercingetorix, Charlemagne, Saint Louis, Joan of Arc, etc., appear before the poet and express their surprise that men have not yet become reasonable and have not abolished war. E. Gojon in *Visage penché* evokes Paris, the great city representing civilization triumphing over the timid and the reactionaries. H. Bouvelet in *Royaume de la terre* expresses in noble lines the philosophic aspirations of the enlightened world. Jules Romains in *Un être en marche* applies Le Bon's theory of the psychology of the masses to a boarding school for girls. Mere names will have to be given for lack of space in the following cases: M. Pottecher, *Paroles d'un père*, Trarieux, *Le portique* (sonnets); E. Jaubert, *Cent ballades*; J. Cocteau, *Le prince frivole*; Toussaint, *Sculpteur de sable*; Maurice Rostand *Poèmes* (style of his famous father). A special mention for Paul Olivier's collection of *Chansons de métiers* (professional songs) with music, and D. Cortier's *Roman de Renard* in modern verses. A great many prizes were awarded: The "Prix National de poésie," given by the government, went to M. Levaillant's *Le Temple intérieur* (remembrances of childhood, philosophy and great hopes of youth). The French Academy has divided several of its prizes, and there was indeed a great variety of talents: Gaubert, *Roses latines* (Provençal songs); W. Chapman, *Rayons du Nord* (Canada); Chenevière, *Les Beaux jours* (days of love); Géraudy, *Petites âmes* (children); Viadot, *L'eau du puits* (religious songs); Arnoux, *Au grand vent* (some exquisite poems inspired by Racine); H. Allorge, *Clavier des harmonies* and *Ames géométriques* (poetical effects obtained by scientific inspiration); Gautier-Ferrières, *Les Romances à Madame* (romantic); Mme. Darget, *Les matinales* (both lyric and dramatic). The "Prix Sully-Prudhomme" went to a young Norman poet, René Bardet, for his book *La Vieille Maison*.

THE NOVEL. The place of honor belongs to a posthumous novel by H. Taine, *Etienne Mayran* (fragments), the masterly picture of a school-boy, both emotional and keen, awakening to the intellectual life of forty years ago. Many recent

novels are still bearing the mark of the realism of the same period. Social problems are studied by Rosny (aîné), *La vague rouge* (trade unionism), by Ch. Géniaux, *Forces de la vie*; and by Le Goffic, *Ventose*. Paul Adam, still dazzled by his experiences in America, writes *Le Trust* and *Le rail du sauveur*. Among the psychological novels, there is one (posthumous) by E. Rod, *Le glaive et le bandeau*, which is specially good. It is a powerful dramatic description of a three days' trial which uncovers all sorts of unsuspected human weaknesses and miseries. P. Margueritte's *La faiblesse humaine* is the story of a provincial lawyer who has himself elected as a deputy in order to live in Paris; there he yields to the usual temptations and renders everyone miserable; but he is rescued by the love and forgiveness of an excellent wife; Amiot's *L'approche du soir* is the story of the love of a man of 47 for a girl of 26. Pierre Valdagne's *Les bons ménages* is a cynical book insinuating that everything is lie and hypocrisy in this world. Not only cynical but brutal is Duvernois' *La bonne infortune*. Cl. Farrère has described with his usual talent *Les petites aliliées*, meaning what may be called here the "grisettes" of a seaport in Southern France. One of the strong books of the year, in spite of its unpleasant subject, is unquestionably the semi-pathologic *Lucien* by Binet-Valmer; Lucien a sort of foul creature, son of a splendid father (a physician) who suggests to his own son suicide to avoid the shame of impending public exposure; but Lucien is too much of a wreck to die honorably. (The name of Balzac was mentioned repeatedly in connection with this book). A pathological case we have also in Postel du Mas' *Roman d'un révolté*; on purpose the hero commits one after the other all the crimes punished by laws, then commits suicide. Vigorous is H. Hirsch's *Le crime de Potru soldat*; Potru has killed in an hour of anger his sergeant, and has remained undiscovered; but a fellow soldier knows all, and in the meanest fashion takes advantage of it to persecute his victim, who is driven to suicide. Tony d'Ulmes has a medical novel, *Les Demi-Morts*, meaning the patients of tuberculosis agonizing slowly in the glorious scenery of the Riviera. In contrast to such gloomy themes is the novel by A. Capus, *Robinson*, a man who finds nowhere in society exactly the place he wants, and finally goes out to the country to cultivate a farm (always the smiling philosophy of *Qui perd gagne*); and that of Courteline, *Coco, Coco et Tolo*, one of the funniest stories by this author. The old-fashioned moralizing novel is represented by H. Bordeaux's *Robe de laine*, a man who cannot understand the simple and devoted love of a charming wife who dies of sorrow, leaving her husband, who has understood too late, a prey to endless remorse. Fancy novels are Boulenger's *Pavé du roi*, a Parisian dandy, bankrupt, driven by necessity to become a coachman on the highroads of France, and Donat's *Le Mort Vivant*, a sort of duplicate of Villiers' *Eve future*: a physician has made an automaton so perfect that when the master dies his servant can substitute the automaton for him. Romain Rolland has added a new volume to his *Jean Christophe* (see YEAR BOOK of 1907), namely, *Les amies* (select types of women he met in Paris). Three novels of provincial life are especially noteworthy: Rod's *Le pasteur pauvre* (a clergyman of French Switzerland); L. Dumur's *Le centenaire de J. J.*

Rousseau in Geneva (very amusing); and H. Bachelin's *Robe noire*; a seminarist comes back to his native village in his black gown and filled with spiritual pride, but he comes near having a love adventure; he conquers, and the girl after his departure decides to wear the white robe of the Virgin. Bazin's *La barrière* describes the terrible social "barrières" erected in England by confessional distinctions. Exotic novels are still in favor: L. Bertrand, *Les bains de Phalère* (sentimental story under the sunny skies of Greece); Mirriam Harry, *Madame Petit Jardin* (a love adventure in Tunis described in a sort of Pierre Loti style); E. Nolly, *La barque Annamite*, describing old customs driven out by European civilization. Three lively novels describe the stage life, Aug. Germain, *Les maguillées*, André Castigne, *Les jolies bill-topers*; Colette Willy, *La Vagazonde*. *Le roi des airs* by G. de Weede is an aviation novel. Stories with children for heroes become more numerous every year. A. Lichtenberger leads again with *Le petit roi* (king child almost crushed by etiquette); F. Nohain attracted attention with his *Jaboune*, a modern child, childish, but no longer the naive child of tradition; M. Epy's *Petit âme* tells that all the best things in life we owe to the presence of children; Fr. Jammes tells most charmingly the story of *Ma fille Bernadotte*. Here would belong L. Delzons' *Le meilleur amour*; the love for children is the best, because disinterested, love, while the other love is the most egoistic feeling in men. Ch. de Pomairols has an original novel, *Ascension*, describing the soul of a girl possessed with a religious vocation and who enters a convent.

The chief novels of the year by women are: Daniel Lesueur, *Princesse Flaviane*, which adds another to her monotonous list of books inducing women to resist by force man's egoism; Renée Lafont, *L'appel de la mer*, the deceptions of love for a woman; and Mme. Marbo tells us that *L'heure du diable* is the hour of man. Mme. Delarue Madrus, with characteristic feminine exaggeration thinks in *Comme tout le monde* that all marriages that look happy cover awful tragedies and hatred. On the other hand, Mme. Colette Yver in *Les Dames du palais* continues her series of novels in which she discourages women from entering the liberal professions; here she takes up women lawyers. Mention has been already made of Mirriam Harry's exotic novel. Jean Bertheroy in *Gilles le Ménestrier* takes us into Sixteenth Century life. Worthy of mention are Duchesse de Rohan, *Les dévoilées du Caucase*; Gyp, *Les petits joyeux*; and Brada, *La brèche*, and attention should be called to the new name of Marie Audoux, a former dressmaker, whose semi-autobiographical *Marie-Claire* has attracted much notice. She received the 5000 francs prize of "La Vie Heureuse."

**SHORT STORIES.** A rich crop of excellent collections, many of the realistic type: Cl. Farrère, *Trois hommes et deux femmes*; L. Frapié, *Contes imprévus*. More psychological are: Bourget, *La dame qui a perdu son peintre*; Ch. L. Philippe, *Dans une petite ville* (the author died in the year); E. Jaloux, *Le Boudoir de Proserpine* (very successful), light, Eighteenth Century style applied to rare love stories. A sort of revival of the fantastic and weird story was noticeable: Pierre Mille was much praised for his volume, *La biche écrasée*, reminding one now of Poe, now of Maupassant; Ch. Foley, who in his

*Chambre au Judas* sings the whole scale of human terrors; G. Apollinaire offers the same sort of catching and disconcerting stories with a more frivolous purpose in *L'hérésiargue et Cie*. An amusing volume of military stories is *Binettes militaires* by A. Charmain, and A. Lichtenberger has stories of the French Revolution, *Tous héros*.

Finally mention should be made of a clever book, *A la manière de* by Paul Reboux and Ch. Muller, imitating the story of famous recent novels and story writers.

The "Prix Goncourt" for 1910 was awarded to Louis Pergaud for a book called *De Goupil à Margot* (16th century novel).

**MÉMOIRES AND HISTORY.** Comparatively few works of importance were published in this line, usually so well represented. For the Seventeenth Century E. Magne's *Mad. de Châtillon*, and for the Eighteenth. Funck-Brentano's *Rosette* (Rose de Launay) are the only ones to mention. For the time of the Revolution: Aulard, *Etudes sur la Révolution*; G. Fabre, *Les pères de la Révolution*; Marquis de Ségur, *Au coucher de la Monarchie*; D. Almeras, *Charlotte Corday*; De Billard, *Les femmes enceintes devant le tribunal révolutionnaire*; Stenger, *Le retour de l'empereur*; P. Frémeaux's remarkable *Les derniers jours de l'empereur*, and the diary of Hudson Lowe; two works on *Talleyrand* by Lacombe and by Loliée. The third volume of the *Mémoires de la Duchesse de Dino* came out. J. Claretie gives interesting souvenirs of the Franco-Prussian War in *Quarante ans après*.

**LITERARY CRITICISM.** No contributions were made which call for much comment. Here are some valuable books arranged according to periods: Mme. L. Félix Faure Goyan, *Vie et mort des fées*; Armaingand, *Le Contre un* (see YEAB BOOK, 1908); Rocheblave, *Agrippa d'Aubigné* (coll. des grands écrivains); Lemaitre, *Fénelon*; Masoon-Forestier, *Racine ignoré*; Caponnière, *Piron*; Gaiffe, *Drame du 18me siècle*. Rousseau is still the favorite author: Champion, *J. J. Rousseau et la Révolution*; Dide, *J. J. R. le protestantisme et la Révolution*; Rodet, *J. J. R. et le contrat social*; Vallette, *J. J. R. Genevois*. In the Nineteenth Century: Souriau, *Idées morales de Mad. de Staël*; Léon Séché, *Delphine Gay, Jeunesse dorée sous Louis Philippe*; P. Lafond, *L'aube romantique, Res-séguier*; A. Séché et Bertaut, *Au temps du romantisme*; Cim, *Le chansonnier Debraux*; Troubat, *La salle à manger de Ste-Beuve*; Clouard, *Balzac*; Dupuy, *Alfred de Vigny, ses amitiés*; Dumoulin, *Les Ancêtres d'A. de Musset*. The letters of Musset to his sister-in-law-to-be were published. After the period of Romanticism: Parigot, *Renan*; Seillière, *Barbey d'Aure-villy*; Ch. Brun, *Le roman social en France*; St. Zweig has a most interesting book on *Verhaeren*. A book on women poets by Jean de Gourmont, *Muses d'aujourd'hui*. J. Bertaut published a well-received *La jeune fille dans la littérature française* (he takes authors like Molière, Fénelon, Rousseau, Hugo, etc.). Finally the much-discussed article of Faguet (*Revue des Deux Mondes*, September 15) on the crisis of the French language must be remembered: The crisis exists, but it is unavoidable; modern preoccupations render it impossible to work on style as formerly; still, one can prevent things from going too fast, by studying Latin which gives the real meaning of words, and by reading

slowly so as to appreciate the value of shades of expression.

**VARIOUS EVENTS.** The following "Immortals" died: A. Vandal, P. Lamy, and Melchior de Vogüé. Three members were received in the Academy: Brieux, Prévost and Doumic.

The Académie Goncourt lost Jules Renard, and replaced him by Mme. Judith Gautier. Besides those mentioned the roll of the dead counts such important names as Edouard Rod, Jean Moréas, and Louis Bousсенard (author of *Le Tour du monde d'un gamin de Paris*). Among the centenarians celebrated are: Musset and Maurice Guérin (the author of *La bacchante* and *Le Centaure*). The twenty-fifth anniversary of Hugo's death was commemorated, and also the eightieth anniversary of Mistral. Monuments were erected to Musset, Rousseau, A. Chénier, Coppée, Vicaire, Allais, Mme. Cottin, Mme. de Ségur, etc. Let us not forget the festivities in September of the thousandth anniversary of the foundation of the Abbaye de Cluny: to the diligent monks who kept alive in the dark ages the tradition of letters and arts, the world is greatly indebted.

**FRENCH MUSIC.** See MUSIC.

**FRENCH SOMALI COAST.** A French protectorate on the Gulf of Aden. Various estimates are given for the area, some as low as six thousand, others as high as forty-six thousand square miles. As the boundaries have not been delimited, the *Almanach de Gotha* estimate of about 8000 square miles seems the best at present. Population, 208,061, of the Danakil and the Somali races. Capital, Jibuti, with about 11,000 inhabitants (600 Europeans). There are mission schools. The industries are insignificant, with the exception of the coast fisheries. Imports and exports (chiefly in transit to and from Abyssinia) in 1908, 13,336,000 and 19,964,000 francs respectively. Railways, 193 miles. Steam vessels entered (1908), 233, of 418,255 tons; cleared, 218, of 376,392. Post-offices, 4. The local budget for 1909 balanced at 1,372,476 francs; French expenditure (budget of 1910), 561,500. A governor (1910, M. Pascal) administers the country.

**FRENCH WEST AFRICA.** A French dependency made up of the colonies of Senegal, French Guinea, the Ivory Coast, Dahomey, Upper Senegal-Niger; and the territory of Mauritania and the Military Territory of the Niger (qq. v.). Total area, 2,677,000 square kilometres (1,033,600 square miles). Estimated total population (1908), 10,668,253 (French, 7401; other Europeans, 1600; natives, 10,659,252). These figures, and those for the separate colonies, must be regarded as approximate only; in many cases the returns are for the fiscal population alone. There are 168 government schools, with 8189 pupils; 29 private, with 2323; 6476 Mussulman, 50,536. Government expenditures for education, 113,335 francs; from local budgets, 1,064,105. Total imports (1908), 108,590,468 francs (France, 58,013,919; French colonies, 3,268,567; other countries, 47,307,982); exports, 84,500,946 (France, 45,132,541; French colonies, 247,057; other countries, 39,121,348). Chief articles of export and value in 1908: peanuts, 33,110,005 francs; rubber, 18,736,733; palm kernels, 7,670,541; palm oil, 7,685,132; cabinet woods, 2,794,124; live animals, 2,058,065; animal products, 1,968,166; corn, 1,198,862; gum arabic, 1,593,946; copal, 439,979. Vessels entered at all ports (1908), 2024, of 2,816,004 tons; cleared, 2012,

of 2,789,057 tons. Total length of railway lines in operation in 1908, 1561 kilometres; receipts for the year, 8,956,203 francs; expenditure, 6,643,284. Total length of telegraph lines, 17,429 kilometres; telephone, 407. Total number of post and telegraph offices, 204. General budget for 1908: revenue, 27,297,979 francs; expenditure, 27,239,187. Total general and local budgets: revenue, 58,311,812; expenditure, 56,262,691. Sources of general revenue: Customs, taxes, etc., 14,979,949; interest on funds, 781,626; Senegal Protectorate, 405,000; etc.; extraordinary, 10,924,177. Items of expenditure: payments in debts, 6,632,306 francs; subventions to colonies, 4,380,000; public works, 1,759,641; customs, 1,218,524; administration, 549,519; etc.; extraordinary, 10,224,583. Total public debt, December 31, 1908, 145,879,500 francs. Expenditure of France on French West Africa (mostly military) in 1910, 15,007,237 francs. The Bank of West Africa has capital, 5,895,000 francs; reserve fund, 254,000. The governor-general (1910, W. Merlaud-Ponty) resides at Dakar, a fortified naval station in Senegal.

**FRIAR LANDS.** See PHILIPPINES.

**FRIEDHEIM, ARTHUR.** See MUSIC.

**FRIEDLANDER, LUDWIG.** A German philologist and archaeologist, died January, 1910. He was born at Königsberg in 1824 and was educated at the gymnasium of his native town, and in the universities of Leipzig and Berlin. In 1847 he became privat-docent at Königsberg. He was made full professor in 1858. His studies were chiefly concerned with Roman archaeology and the history of Homeric criticism. He edited Juvenal and Martial and published among others the following works: *Die homerische Kritik von Wolf bis Grote* (1853); *Analecta Homerica* (1859); *Ueber den Kunstsinn der Römer in der Kaiserzeit* (1853); *Darstellungen aus der Sittengeschichte Roms*, etc. (8th ed., 1888-90), and an edition of the *Cena Trimalchionis* of Petronius (1895).

**FRIENDS, THE; or THE SOCIETY OF FRIENDS,** often called QUAKERS. A denomination of Christians which had its origin with the preaching of George Fox about 1647. In the United States there are four bodies of the denomination, the so-called Orthodox, the Religious Society of Friends, to whom the name Hicksite is sometimes given by those outside of the denomination, the Wilburite and the Primitive. The difference between these bodies is chiefly in matters of church administration. In point of numbers, the largest body is the Orthodox, which in 1910 numbered about 100,000 communicants, with 1350 ministers and 570 monthly meetings. This branch is strongest in the States of the Middle West. In the United States it has fourteen yearly meetings and in Canada one. Thirteen of these are combined in a federation known as the Five Years Meeting. This body next meets in Indianapolis in 1912. The Orthodox branch has twelve colleges under its control, the best known of which are Haverford College for men, Earlham College for men, and Bryn Mawr College for women. The Orthodox body maintains missions and many philanthropic institutions. Its official organ is *The American Friend*, published in Philadelphia.

THE RELIGIOUS SOCIETY OF FRIENDS has in round numbers 20,000 members, with 183 meetings for worship. It has seven yearly meetings in the United States and Canada. The Society has under its auspices Swarthmore College at

Swarthmore, Pa., with thirteen preparatory and twelve secondary schools in New York, New Jersey, Pennsylvania, Delaware and Maryland. Its schools and colleges are all co-educational. In July, 1910, the Biennial General Conference was held at Ocean Grove, New Jersey, with the largest attendance of any similar gathering in the history of the Society. The Religious Society of Friends carries on active philanthropic work, especially in the line of peace and temperance. The Advancement Committee, appointed by the General Conference, maintains headquarters at 140 N. Fifteenth Street, Philadelphia, and has a general secretary who devotes all his time to the work of the Society. During 1910 this committee published an important volume entitled *The Life and Labors of Elias Hicks*. The Society publishes the *Friends' Intelligencer*, in Philadelphia. During 1910 the Society witnessed an upward tendency in membership and interest. For the first time in half a century the largest yearly meeting, that of Philadelphia, showed an increase in membership for 1909-10.

THE WILBURITE branch had in 1909-10 about 4500 communicants with 38 ministers. It has seven yearly meetings, each of which is independent, relations between them being maintained by an annual exchange of epistles.

THE PRIMITIVE BODY is very small, numbering about 235 communicants and 11 churches.

FRUITS. See HORTICULTURE.

FULLER, MELVILLE WESTON. Chief Justice of the Supreme Court, died July 4, 1910. He was born in Augusta, Me., in 1833, and graduated from Bowdoin College in 1853. He studied law in the office of his uncle, George W. Weston, at Bangor, Me., and attended lectures in law at Harvard College. In 1856 he was admitted to the bar and began practice in Augusta, where he was elected to the City Council and also for a time served as city attorney. At the same time he edited the *Augusta Age*, which was founded as a rival to James G. Blaine's *Kennebec Journal*. The rapid growth of Chicago attracted his attention and he removed to that city. He at once took an active part in politics as a Democrat and was elected a member of the State Constitutional Convention in 1861. In the following year he was elected to the State legislature from a Republican district. Although he remained a member of the Democratic party during the war, he had no sympathy with that wing of the party which supported the South. He was a delegate to the Democratic National Convention in 1864, 1872, 1876, and 1880. During his active practice of the law, Justice Fuller was concerned in many celebrated cases and gained a reputation for an unusual scope of legal knowledge. Although he was well known in the West, his reputation had not penetrated to the Eastern section of the country and his nomination as Chief Justice of the United States Supreme Court by President Cleveland in 1888 occasioned surprise which was followed by strong opposition. The Senate hesitated for a time to confirm the appointment. Justice Fuller, however, found some warm supporters among his political opponents and his nomination was finally confirmed by a vote of 41 to 20, largely through the efforts of the Republican Senators from Illinois. In the year following his elevation to the bench he was appointed a member of the convention at Paris to arbitrate the boundary dispute between Great Britain and Venezuela

and in 1905 he was one of the peace commissioners at The Hague. Among the most important cases in which Justice Fuller gave his opinion were the nullification of the income tax law and the decision which destroyed the Northern Securities merger. Other important decisions were in the Danbury Hat case and the Western Union Telegraph Company vs. the Commonwealth of Pennsylvania. Although Justice Fuller lacked any brilliant characteristics to make him prominent in the public eye, he was noted for his thorough knowledge of the law and for his executive ability.

FURNIVALL, FREDERICK JAMES. An English philologist and Shakespearian scholar, died July 2, 1910. He was born at Egham, Surrey, in 1825 and was educated at public schools, at the University College, London, and at Trinity College, Cambridge, graduating from the latter in 1846. He studied law and was admitted to the bar in 1849. In his youth he was well known as an oarsman and in 1845 built the first two narrow sculling boats in England. For ten years he was associated in philanthropic work with F. D. Maurice, teaching in the Workingmen's College. He afterwards devoted himself to philology and succeeded in founding for the publication of texts the Early English Text Society, 1864, the Chaucer Society, 1868, the Ballad Society, 1868, the New Shakespeare Society, 1874, the Browning Society, 1881, the Wyclif Society, 1882, and the Shelley Society, 1885. He was for many years joint editor and later sole editor of the new *English Dictionary*, now called the *Oxford Dictionary*. He was also honorary secretary of the Philological Society. He edited a large number of English manuscripts and texts, chiefly through the medium of the societies mentioned above. One of the most notable of these was a *Six-Text Print of Chaucer's Canterbury Tales* (1868-1875). This he followed with the publication of the seventh text and the manuscripts of Chaucer's minor poems. Under his supervision were published forty-three facsimiles of the quartos of Shakespeare's plays. He wrote also introductions to the *Leopold and Royal Shakespeares*, and in coöperation with John Munro the introduction to the *Century Shakespeare and Shakespeare's Life and Works*. With F. W. Clarke he edited the *Old Spelling Shakespeare*. When Dr. Furnivall reached his 75th birthday the delegates of the Clarendon Press published a memorial volume written by his friends in his honor and bearing the title *An English Miscellany*. In commemoration of the same anniversary his portrait was painted and given to Trinity Hall, £450 was raised and presented to his Early English Text Society and he was presented with a three sculling boat. Dr. Furnivall was interested in a number of organizations of a philanthropic nature and was active in the Christian Socialist and the coöperative movements and in the affairs of the Workingmen's College. He held honorary degrees from many English universities and societies.

GADOLINIUM. See ATOMIC WEIGHTS.

GALLE, JOHANN GOTTFRIED. A German astronomer, died July 10, 1910. He was born at Pabsthaus, 1812. He studied the mathematical sciences at Berlin, taught for a time in a gymnasium, and was subsequently made assistant professor in the Berlin Observatory, of which Encke was director. He discovered three unexpected comets and was awarded the prize of the French Academy. His principal achievement,



Copyright by Harris & Ewing, Washington, D. C.

**ASSOCIATE JUSTICE DAVID J. BREWER**



Copyright by Harris & Ewing, Washington, D. C.

**CHIEF JUSTICE MELVILLE W. FULLER**

2340

however, was the finding of the planet Neptune. Leverrier had addressed to the Berlin Observatory a request that a search be made for a hypothetical planet, whose place in the sky he had computed from the disturbances in the motion of Uranus. Galle made the search requested and was the first to perceive the new planet, September 23, 1846. He was also perhaps the first astronomer to advocate, in 1875, the use of planetoid observations for the determination of the solar parallax, a method now considered the best known. His researches on this subject were published at Breslau, where in 1851 he had been made director of the Observatory and professor of astronomy. Among his published writings are the following: *Grundzüge der schlesischen Klimatologie* (1857), *Ueber die Verbesserung der Planetenelemente* (1858), *Ueber die Bestimmung der Sonnenparallaxe* (1875), *Mitteilungen der Breslauer Sternwarte* (1879), *Verzeichnis der Elemente der bisher berechneten Kometenbahnen* (1894). His original contributions were published, for the most part, in scientific periodicals.

**GALLISON, HENRY HAMMOND.** An American artist, died October 12, 1910. He was born in Boston in 1850 and studied art in Paris. He exhibited in London, Paris, Turin and in the Paris Exposition of 1900. At the latter exhibition he received honorary mention. His picture "Rising Mists," exhibited at Turin in 1902, was purchased by the Italian government for the National Museum. This was the first picture by an American artist to be so honored. He received a medal at the St. Louis Exposition in 1904.

**GALLIUM.** See ATOMIC WEIGHTS.

**GALSWORTHY, JOHN.** See LITERATURE, ENGLISH AND AMERICAN, *Poetry and Drama; Fiction.*

**GALVESTON, TEXAS.** See MUNICIPAL GOVERNMENT.

**GAMBIA.** A British crown colony and protectorate on the west coast of Africa. Area of the colony proper, 4 square miles; population, 8807. The area of the protectorate is variously estimated at from 3600 to 4500 square miles; population (estimate), 152,005. Capital, Bathurst, on the island at St. Mary. There are government and mission schools. Trade is largely with or through the adjoining French colony of Senegal; the exports are groundnuts, beeswax, hides, rice, millet, sweet potatoes, cotton, and rubber. Statistics for two years are given below in pounds sterling:

	Imports.	Exports.	Rev'ue.*	Expen.*
1907.....	£445,359	£408,467	£65,892	£57,729
1908.....	390,740	374,138	57,898	61,097

\* Year ending March 31.

Chief imports (1908): cotton goods, £68,871; kola nuts, £39,794; rice, £37,764; spirits, £5247; tobacco, £5937. Chief exports: groundnuts, £245,084; rubber, £1163. Tonnage entered and cleared, 418,441 (British, 301,287). Revenue from customs, £44,064. There is no debt. Governor (1910), Sir George C. Denton.

**GAME LAWS, 1910.** As few of the State legislatures were in session in 1910 the number of laws relating to game was less in that year than in the years when the legislatures of nearly all the States meet. Game measures were considered by all the legislatures in session, but in the case of Georgia all legislation failed. Five Canadian provinces modified their game

laws and changes were made through Orders in Council in British Columbia and Ontario.

**GAME PROTECTION.** In general, the game legislation of the year was favorable to game protection. Maryland, New Jersey and South Carolina took steps toward uniformity of seasons. The warden service was strengthened in Louisiana, Massachusetts, New York, Oklahoma, South Carolina, and New Brunswick. The growing scarcity of game was emphasized by the establishment of bag limits in Maryland, Massachusetts and South Carolina for the first time. A limit was placed on hares and rabbits in New York and there was a general reduction of bag limits in Louisiana. The latter State created two game preserves and New York extended the St. Lawrence reservation to cover State lands along the eastern end of Lake Ontario. Two novel features characterized the legislation of the year. Louisiana passed a law prohibiting the liberation of imported birds except upon special permission of the game officials, and New York provided a special fine of \$100 for the violation of its game laws by a non-resident or alien.

**OPEN SEASONS.** Maryland and New Jersey established practically uniform duck seasons. South Carolina established uniform seasons for all games practically throughout the State. In Massachusetts a week's deer season was opened in five counties. New York closed the deer season for three years on Long Island. South Carolina passed a measure giving absolute protection to does for five years and Louisiana placed black bears on its game list.

**LICENSES.** License measures were passed by Louisiana reducing the non-resident fee from \$25 to \$15 and established a \$10 resident market hunting license. British Columbia established a \$50 bird license good for seven months, and restricted its non-resident 5-week licenses to British subjects. Nova Scotia established a \$15 non-resident license for small game, and New Brunswick repealed its 25 cent resident deer license and also its special resident Westmoreland County license.

**FEDERAL LAWS.** Two important measures were passed by Congress. One of these established a Glacier National Park in the Rocky Mountains south of the international boundary line, and the other protected the seal fisheries of Alaska and incidentally transferred from the Department of Agriculture to the Department of Commerce and Labor charge of the Pribilof bird reservation.

#### GARBAGE AND REFUSE DISPOSAL.

Two of the larger cities of the United States, Milwaukee, Wis., and Columbus, O., completed notable plants for the disposal of city refuse during 1910. The Milwaukee plant affords a good example of the high-temperature type of incinerator, with the utilization of the resultant heat, and the Columbus plant is equally representative of the reduction process, with the recovery of grease and fertilizer tankage. The Milwaukee furnaces superseded older furnaces, and the latter had succeeded a reduction plant. The Columbus reduction works was the first plant of the kind designated and built originally by a city and is the second municipally-owned garbage reduction works in the country. For some years prior to and ending in April, 1906, the garbage of Columbus was treated at a privately-owned reduction works, and from 1906 to 1910 it was buried in land of a farm rented for that purpose by the city.

The Milwaukee incinerating plant was put in partial operation in April, 1910, and in full operation on May 12, 1910. It has a nominal daily capacity of 300 tons of mixed refuse, or garbage, ashes and miscellaneous rubbish. It is of the British type of furnace known as Heenan & Froude, but was built by the Power Specialty Co., of New York, after general designs by Hering & Fuller, New York, with Samuel A. Greeley as resident engineer. The contract requirements, all of which were fulfilled, called for the burning of 60 pounds of mixed refuse per square foot of grate surface; a minimum temperature of 1250° F and an average of 1500° F., and the evaporation of 1.25 pounds of steam from and at 212° F., for each pound of refuse burned. The operations of the first two months promised that enough steam would be produced by the furnaces to pay the operating and the fixed charges of the plant.

Ultimately, it is expected that one or more additional incinerators will be built at Milwaukee. For the present, all the garbage of the city is being collected separately and brought to the incinerating plant, and the same is true of the ashes and rubbish of portions of the city. The garbage is collected in steel boxes of 1½ cubic yards capacity, mounted on four wheels, the whole drawn by one horse. The ashes and rubbish are collected in two-horse, bottom-dumping wagons of 3 cubic yards capacity. At the incinerating plant the garbage boxes are lifted from the carts by an electric hoist, and carried into the building and dumped by an electric trolley crane. The ashes and rubbish wagons are dumped into boxes on the ground level and hoisted and dumped in like manner. The building is of concrete, both plain and reinforced, brick and steel, with a basement and first story about 100 feet square, and a second story smaller in floor plan. There is a radial brick chimney 10 feet in internal diameter and 154 feet high above the clinkering or main floor. There are four independent furnace units, each of 75 tons daily capacity, and four 200-h.p. boilers supplied with heat from the incinerating furnaces. The garbage, ashes and other refuse are dumped into storage hoppers on the second floor of the building, to be subsequently raked or shoveled out onto the mixing and charging floor, and fed to the furnaces through charging chutes, the contents of which are dumped mechanically on to inclined drying grates from which the mixed refuse is raked forward on to the burning grates. After the gases of combustion have passed from the various furnaces into a combustion chamber and been raised to a high temperature they go to the boilers, and thence to and through air heaters, which heat the air for the forced blast supplied to each furnace. Forced ventilation for the plant is provided by means of four 48-inch Sirocco fans, each having a capacity of 10,000 cubic feet per minute. The clinker from the furnaces is raked out through clinker doors on the ground floor and falls into clinker cars which run on tracks laid in the basement. Various recording instruments for furnace temperatures, amount of carbonic acid gas sent to the chimney and volume of air used for forced draft are provided. The resident engineer on construction was retained as superintendent of the incinerator, thus ensuring efficient operation and affording a marked contrast to the usual American city practice of employing the best engineering talent in design and con-

struction of public works and then entrusting the operation to political appointees. The cost of the Milwaukee incinerating plant was about \$210,000, or \$700 per ton of nominal daily capacity.

The Columbus reduction works were put in operation on July 20, 1910. They form a part of a complete system of garbage collection, horse-and-wagon and railway transportation, and means of final disposal, all (except railway track and locomotives) owned by the city. Unlike Milwaukee, the Columbus plant deals with garbage only. A total of \$290,000 of bonds was voted for the collection and disposal plant. The reduction plant alone, including a levee for flood protection and terminal tracks, cost about \$180,000. The reduction plant has a contract capacity of 160 tons a day, which was exceeded on the acceptance test.

The city of Columbus owns 34 covered garbage-collecting wagons, of which about 25 were in regular service in 1910. The wagon boxes are of steel. The city has built a two-story garbage station, 40 x 90 feet in plan, with track accommodation for two railway cars. The garbage wagons are hauled into this station by way of an inclined driveway and are dumped into the cars below by the aid of an electric hoist. The city owns four garbage cars, each of 1400 cubic feet or 40 tons capacity. These are hauled to the reduction plant, between 7 and 8 P. M. of each working day. A stable for one hundred horses, with offices, and with baths for the garbage men, adjoins the receiving and shipping station.

The Columbus reduction plant is located on the Scioto River, adjoining the city sewage-purification works, about four miles from the heart of the city. There is a green garbage building, 40 x 90 feet in plan, a main building, 76 x 162 feet in plan, a stable and a small office building. On arrival at the reduction plant, the garbage cars are weighed, then run into the green garbage building and dumped. After being sorted and drained the garbage is shoveled into conveyors which carry it forward and upward to the top of the main building, and dump it through swivel spouts into any one of eight digesters. These digesters have a capacity of 10 to 12 tons each, are 7 feet in diameter and 14 feet high, and are made of ½-inch steel plate, lined with 1½ inches of cement and tile to prevent damage by wear and acids. The digesters are steam tight and in them the garbage is cooked for about six hours with steam at an entering pressure of 60 to 70 pounds per square inch. The cooking releases the grease in the garbage. To separate the grease and water from the solid matter or tankage and the grease from the water several operations are required. First, the tankage is dropped into one of the two large metal roller presses. The grease and water thus expressed go to catch-basins and are then pumped to a series of six grease-separating basins. Here the grease rises to the top and is sent to two treating tanks, where it is heated and impurities removed. The grease is then pumped to storage tanks of which there are four, each of 15,000 gallons capacity.

The solid matters in the grease-separating tanks is pumped out, pressed, and sent to dryers. The tank water from the grease-separating tanks is sent to a triple-effect evaporator, and the resulting "stick" is also sent to the drying room. The digester tankage, after passing the roller presses, goes to and through revolving steam

jacketed driers, and then through a revolving screen. Next, the screened tankage and the "stick" or concentrated syrup already mentioned are put into one of two vacuum dryers and finally there results a fertilizer base, which, with the grease, forms the commercial product of garbage reduction works. During the latter part of 1910 percolating apparatus was being added to the Columbus plant, for the recovery of the considerable amount of grease still left in the tankage. This will be effected by the use of a volatile solvent, which latter will be recovered by condensation for use over and over again.

To supply steam for cooking the Columbus garbage three  $6\frac{1}{2} \times 20$  foot horizontal tubular boilers are provided. The presses, revolving dryers and screens, etc., are driven by independent motors. The electric current for these motors and for lighting the reduction works is supplied by the municipally-owned electric light plant, at  $1\frac{1}{2}$  cents per kilowatt hour. The vapors generated within the works are condensed in apparatus provided for the purpose and the odoriferous gases are burned under the boiler furnaces. The first few months of operation of the works indicated that the grease and tankage would pay all operating expenses and fixed charges of final disposal. The engineer for the design and construction of the plant was Mr. I. S. Osborne, who subsequently became engineer-in-charge of garbage and refuse disposal, under the Board of Public Service. Lengthy illustrated descriptions of the Milwaukee incinerator and the Columbus reduction works, written by the engineers in charge of construction, appeared in *Engineering News* (New York), for July 21 and November 17, 1910, respectively.

**GARDNER, E. H.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**GARDNER, S. R.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**GARLAND, HAMLIN.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**GARRISON, GEORGE PIERCE.** An American historian and educator, died July 3, 1910. He was born at Carrollton, Ga., in 1853 and was educated at Edinburgh University and at Chicago University. From 1884 to 1888 he was instructor of English history in the University of Texas. In 1889 he was associate professor of history. From 1897 to 1909 he was professor of American history in the University. He was the author of *The Civil Government of Texas* (1898), *Texas* (American Commonwealth Series 1903), *Westward Extension* (American Nation Series, 1906). He edited the *Diplomatic Correspondence of the Republic of Texas* and contributed to historical magazines and periodicals.

**GARSTANG, J.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**GAS ENGINES.** See INTERNAL COMBUSTION ENGINES, and PUMPING MACHINERY.

**GATHORNE-HARDY, A. E.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**GAS PUMP.** See PUMPING MACHINERY.

**GAY, WINCKWORTH ALLAN.** An American artist, died February 23, 1910. He was born at Hingham, Mass., in 1821 and was educated in the common schools. He began the study of art at the age of seventeen under Robert Weir at the United States Military Academy at West Point. He studied also in Paris and spent several years in Italy and Switzerland. In 1850 he returned to the United States where he opened a studio in Boston. He went to Japan in 1877 where he re-

mained three years. Much of his time was spent abroad. His pictures of New England scenery are the best of his works, and among the most notable of these is "The Mackerel Fleet off Beverly Coast" (1863).

**GAYLORD, Dr.** See CANCER.

**GAYNOR, W. J.** See NEW YORK.

**GEMS, ARTIFICIAL.** See CHEMISTRY, INDUSTRIAL.

**GENERAL EDUCATION BOARD.** See UNIVERSITIES AND COLLEGES, and EDUCATION IN THE UNITED STATES.

**GENERAL ELECTIONS.** See GREAT BRITAIN, *History*.

**GENERAL FEDERATION OF WOMEN'S CLUBS.** See WOMEN'S CLUBS.

**GENETICS.** See BIOLOGY.

**GENEVA CONFERENCE.** See EGYPT.

**GENIAUX, CH.** See FRENCH LITERATURE.

**GEOGRAPHICAL SOCIETY, AMERICAN.**

A learned society organized in 1852 to investigate and disseminate new geographical knowledge, by discussion, lectures and publication; to encourage geographical exploration and discovery, and to establish in the chief maritime city of the country, for the benefit of commerce and navigation and the great industrial and material interests of the United States, a place where the means shall be afforded of obtaining accurate information for public use concerning every part of the globe. The society has over 1250 members. It has a library of over 40,000 volumes, which is constantly increasing. It awards two gold medals at the discretion of the Executive Council. These medals are bequests from General Cullum and Charles P. Daly and are called the Cullum and Daly medals respectively. The latest recipients of the Cullum medals are Sir Ernest H. Shackleton and Professor Hermann Wagner, and of the Daly medal Col. C. Chaillie-Long. The society erected during the year a new and spacious building at the corner of 156th Street and Broadway, New York City. The land for this was presented by Mrs. Collis P. Huntington. The building will cost about \$250,000. It will afford five times the space available in the present building, which was constructed by the society about ten years ago. The collections of the society are also open for free reference to students and others properly introduced. The officers are as follows: President, Archer M. Huntington; vice-presidents, John Greenough, J. Hampden Robb, Anton A. Raven; editor, Cyrus C. Adams; librarian, Frederick S. Dellenbaugh.

**GEOGRAPHIC SOCIETY, NATIONAL.** A learned body founded in 1888 for the publication of the results of geographic exploration and research. The data gathered are published in an illustrated monthly magazine, the *National Geographic Magazine*. The Society maintains a library at Washington at its headquarters. Here gold medals are awarded and a series of addresses is given. During 1910 the membership of the society advanced to 74,000, thus giving it rank as the largest scientific organization in the world. The society maintained in 1909 a large expedition in Alaska headed by Professor Lawrence Martin of the University of Wisconsin. An account of the researches of this expedition was published in the *National Geographic Magazine* in 1909-10. The annual dinner of the society was given in honor of the United States army and the discovery of the art of aviation. The guests of honor were the President of the

United States, the German, British and Mexican Ambassadors, Major-General Leonard Wood and Mr. Wilbur Wright. During the year a series of 21 lectures, which included lectures by Theodore Roosevelt, George Kennan, Dean C. Worcester, Secretary of the Interior of the Philippine Islands, Col. George Goethals, Chief Engineer of the Panama Canal, and Hon. Charles W. Fairbanks, were given before the society. The gold medal was awarded to E. H. Shackleton for exploration in the Antarctic, on March 23, 1910. The officers in 1910 were Henry Gannett, President; C. H. Tittmann, Vice-President; O. P. Austin, Secretary; John Joy Edson, Treasurer; Gilbert H. Grosvenor, Editor and Director.

**GEOLOGICAL CONGRESS, INTERNATIONAL.** See GEOLOGY.

**GEOLOGY.** The contributions to geological knowledge during 1910 may fairly be considered as commensurate in interest and importance with the record for any of the few preceding years. No very remarkable discoveries can be ascribed, perhaps, to the year's activity; progress was rather the result of a great number of investigations by individual workers and public surveys based upon established principles. Governmental surveys, which of late have greatly increased their field of operations, naturally contributed a large share to this advancement. Their contributions included not only maps and descriptions of areal geology, but studies of mineral deposits, water resources, and allied subjects as well as much of more purely scientific interest.

**INTERNATIONAL GEOLOGICAL CONGRESS.** A leading event of the year was the convening in Stockholm of the eleventh International Geological Congress, which holds triennial sessions. Nearly 800 members from all the leading countries were in attendance, and the meeting was the most successful one that has been held. The president of the congress was Prof. G. de Geer of the University of Stockholm, and the secretary J. G. Andersson, Director of the Geological Survey of Sweden. The attention of the members was directed to a limited number of subjects, within such departments as glacial geology, the Pre-Cambrian formations and the geology of the arctic regions, which were of particular concern to the Scandinavian countries. Preliminary to the congress a committee of Swedish geologists had prepared an exhaustive monograph on the iron ore resources of the world. An important work relating to the changes of climate since glacial times was also issued in connection with the meeting. It was voted to hold the next congress in 1913 in Canada.

**DYNAMICAL GEOLOGY.** The principle of isostasy in its relation to the figure of the earth was treated by J. F. Hayford, who analyzed a great number of gravity determinations made by the Coast and Geodetic Survey in recent years. The results as interpreted by Hayford apparently demonstrate the actuality of isostasy, or at least are best explained in the light of that principle. It would appear, therefore, that the earth's crust is in a delicate state of equilibrium and that the continental land areas are maintained in their position above sea-level by their deficiency of density, that is they are buoyed or floated on the substratum and not held in place by simple rigidity.

**CHEMICAL DENUDATION.** F. W. Clarke contributed an analysis of existing data on the subject of chemical denudation and showed that

former estimates by Reade, Murray and others as to the amount of saline matter carried in solution by streams which reach the sea should be revised. Denudation values were calculated for 28,000,000 square miles approximately of land surface distributed among the different continents; these gave a yearly mean of 68.4 metric tons per square mile. On that basis the total amount of saline matter carried by river drainage from the land surface of about 40,000,000 square miles is 2735 millions of metric tons a year. Aside from its bearing upon the waste of the land by stream agency, the calculation may be used in connection with other data to redetermine the age of the earth, as discussed in another paragraph of this article. Clarke placed the mean sodium content of the dissolved solids in river water at 6.4 per cent. The total amount of saline matter held in the ocean may be estimated at  $46,188 \times 10^{12}$  tons, of which  $14,130 \times 10^{12}$  tons consists of sodium.

From a compilation of data on the work of streams in lowering the land surface, R. B. Dole and H. Stabler found that the whole area included within the United States is undergoing denudation at an average rate of one inch in 760 years. Although this figure seems small enough, it becomes very significant when translated into tonnage of material transported by the streams, which totals no less than 783,000,000 tons each year, equivalent to 350,000,000 cubic yards of rock. The rate of denudation of course varies widely in different sections. The highest figure is reached in the southern Pacific basin, where the annual amount removed averages 177 tons for each square mile. The northern Atlantic basin comes next with 130 tons a square mile, and the lowest average is found in the Hudson Bay basin with 28 tons a square mile.

**GLACIAL GEOLOGY.** The controlling conditions of glaciation during the Pleistocene and earlier periods which were characterized by the formation of extensive ice-sheets was discussed by M. Manson, who expressed the view that the ice invasions were independent of a zonal distribution of temperatures such as obtains at present. The glacial phenomena occur without reference apparently to latitude, except in the last, or Pleistocene, period, when a solar control of temperatures may have been inaugurated. The Cambrian and Permo-Carboniferous glaciations extended far into the temperate and even into the tropical zones, so that very probably they were not influenced by climatic belts. On the other hand, the range of temperature must have been moderate throughout the world. Although it is not doubted that the heat emitted by the sun has varied in geological time, the conditions that gave rise to the glacial periods can be best explained on a meteorological basis, such as a state of persistent cloudiness. The effect of this would be to screen off most of the solar heat and to prevent radiation, thus eliminating the tendency to zonal distribution of temperatures.

A paper by G. de Geer brought out a new aspect of glaciology by demonstrating the possibility of using morainal accumulations as a means of computing time. A study of these deposits in Sweden showed that they are composed of layers in recurrent series, each series representing the increment of material of a single year. It was found possible to correlate the layers of adjacent moraines and to derive in this way a time-scale by which to reckon the interval that has elapsed since the ice-sheet retreated by

successive stages to the north. The lapse of time since the disappearance of the ice from southern Sweden was estimated at 12,000 years.

Evidences of extensive glaciation during the Triassic period were reported by Ball and Shaler to have been discovered in Central Africa. A series of rocks in the Lualaba valley of the Congo basin has a conglomerate at the base that is made up of an unassorted mixture of pebbles and boulders showing glacial characters. The rock below the conglomerate is smoothed and deeply scored on the surface, as if by the action of a moving ice sheet. The source of the glacier is supposed to have been in the mountains south-east of Kabambare. Permanent ice fields are found at present in Central Africa only on the three highest mountains—Kilimajaro, Ruwenzori and Kenia, at elevations above 13,000 feet. The existence of a glacial epoch in the Permo-Carboniferous of South Africa in connection with the later Triassic epoch in the heart of the continent indicates a prolonged period of glaciation over an extensive area.

**PHYSIOGRAPHY.** With the fourth volume of *Das Antlitz der Erde* (issued also in English under the title *The Face of the Earth*) Eduard Suess brought to completion his great masterpiece of geological research. The nature of this work has already become widely known through the preceding volumes, the first of which appeared over a quarter of a century ago. The latest installment completes and unifies the exposition of the earth's structural features as unfolded in the earlier volumes, making use of new data where available, and presents the author's conclusions on the subjects of climatic changes, distribution of life and other fundamental problems.

**STRATIGRAPHY.** The paucity of fossil remains in rocks older than the Cambrian is one of the striking features of the geological record. Some traces of organisms have been found in Pre-Cambrian rocks, it is true, but they are less abundant and less varied as to development than would be expected from the extensive fauna which marks the beginning of Paleozoic time. The existence of a highly differentiated fauna in the lowest Cambrian strata is presumptive evidence that life must have flourished previously for a very long period. In discussing the reasons for the seemingly abrupt appearance of the Cambrian fauna on the North American continent, C. D. Walcott expressed the view that it is to be explained by physical conditions with reference especially to the character of the sedimentation during late Pre-Cambrian or Algonkian time. The Algonkian rocks are mainly of terrigenous origin and are considered as having been deposited in epicontinental seas and lakes of fresh or brackish water. At the time of their deposition the American continent was situated with regard to sea level about as at present, or it may have been even more elevated, so that the oceanic waters could not gain access to the interior parts. Inasmuch as life originated and developed for some time, most likely, in the open ocean, there was no opportunity for the preservation of its remains in the present known Algonkian areas; but it may be represented in the strata that are buried under the oceans. At the close of Algonkian time a marine invasion took place and the life that had developed during that period has been preserved in the lower Cambrian deposits. Walcott proposes the term Liplalian to be used for the era

of unknown marine life and sedimentation which preceded the Cambrian.

**LAND FORMATIONS.** The evolution of the North American continent was treated very comprehensively by C. Schuchert in his *Paleogeography of North America*. The work gives a history of paleogeography from the first maps which were prepared by J. D. Dana down to the present; it includes 53 maps illustrative of the changes through which the continent has passed during the various periods of geological time since the Cambrian. The maps with the explanations in the text also afford a conception of the topographic relief of the area for the corresponding periods.

The possible existence of a land connection in Tertiary time between Scotland, Ireland, Greenland and Labrador was discussed by R. F. Scharff who brought forward evidences of both physical and biological nature in its favor. It has been found that a bank (Rockhall bank) with an average depth of 100 fathoms exists far out in the Atlantic to the west of Scotland. Dredging on this bank brought to light molluscs of shallow-water habits that could not live there under present conditions. It is also stated that the submerged platforms bordering the British Isles show river valleys and canyons of an ancient land surface, and the same has been asserted regarding the Atlantic continental shelf of North America. From the standpoint of biology the distribution of plants and animals on the two sides of the Atlantic requires for its explanation the assumption of such a land bridge in late geological time. Southern Greenland contains many European plant species. The Faroes furnish species that must have come from Greenland and North America.

**ARCTIC CLIMATE.** The climate of the arctic regions in past geological ages is a subject to which much interest is attached by the fact that the strata found in the higher latitudes often reveal evidences of an abundant fauna and flora. The existence of a varied animal life under arctic conditions is perhaps not so surprising, as in fact the polar seas at the present time teem with invertebrates, and even land animals like the musk ox and reindeer are able to maintain themselves far north of the Arctic circle. But it is difficult to understand how the extensive flora found in the Carboniferous, Triassic and Jurassic rocks could have existed under conditions similar to those of to-day. Most geologists who have studied the problem have concluded that the climate during those periods was actually warmer. Another explanation that has been considered by a smaller number as applicable is that the plants did not grow in place, but their remains were brought from southern latitudes by northerly flowing ocean currents or by streams. A careful examination of the evidences was made by A. G. Nathorst, who found that in most instances the plants are indigenous to the regions where their remains now occur. In only one or two places, as in Greenland and possibly Spitzbergen, are the remains associated with marine deposits, but these exceptions have not much importance for evidence since elsewhere beds of corresponding age show characters of fresh-water deposits. The facts lend support to the view that the climate during some periods must have been comparatively mild.

**FOSSIL MAMMALS.** The discovery of fossil mammals of Pleistocene age in cavern deposits of central Cuba, reported by Prof. de la Torre

of the University of Havana, attracted attention as their existence within the island had not, hitherto, been definitely established. Apart from its paleontological interest the discovery has importance in that it may be considered as evidence of a recent connection between the West Indies and the continent. Other vertebrate remains were recently found on the island of St. Martin.

**PETROGRAPHY.** Experiments on the flow of rocks under pressure were described by Adams and Coker. It is a matter of common observation that the older rocks, which sometime have been deeply buried in the earth and there subjected to powerful stresses, have been contorted and folded as if they were plastic substances like clay or wax. The manner in which this deformation takes place has not been clearly understood. Some geologists have held that there is really a molecular flowage of material, the rigidity of the rocks being overcome by the intense pressure. Others have attributed the deformation to effects of crushing followed by a recementation of the fragments from mineral matter deposited by underground waters, or else to a continuous process of solution and redeposition of the rock minerals. The agencies of heat and water have usually been considered essential in the development of such secondary structures. In the present experiments, which were made on an elaborate scale under the aid of the Carnegie Institution, it was found that structures identical with those found in nature could be reproduced by artificial means, and not only with the softer rocks like marble and limestone, but with granite, diabase and other very hard kinds. Pressures ranging from 120,000 to 300,000 pounds per square inch were employed under different conditions of temperature, moisture and time. The rocks were made to flow so as to show a marked foliation, and the resultant products still retained a very considerable part of their original strength. It was found that the presence of water was not essential to the process, and in fact under most conditions had very little influence. Heat, however, tended to facilitate deformation and the product was relatively stronger than if the deformation had been carried out at ordinary temperatures. The element of time also exercised an influence, the product showing a gain of strength with slow compression as compared with rapid compression.

R. T. Chamberlin determined the nature and relative proportions of the different gases occluded in rocks. It was found that rocks characterised by high percentages of iron and magnesian minerals contained the most gas. The author of the paper inclined to the view held by Suess that the water and gases found in igneous rocks have been brought up from the earth's interior and are an integral part of the magma.

**ECONOMIC GEOLOGY.** In this department the most important contribution for the year, undoubtedly, was *The Iron Ore Resources of the World* already mentioned as one of the works initiated by the Stockholm Geological Congress. The results of the investigation, in which over 50 leading authorities participated, were published in two volumes of text and one of maps, under the editorship of J. G. Andersson. The description of the ore occurrences makes the work of great value to the geologist for comparative study, and the information on the volume and the character of the deposits will be welcomed as the first serious attempt to formulate an

estimate of the supplies of iron ore available for our future industrial needs. The actual known reserves of ore for all the different countries are estimated at 22,408 millions of metric tons, which will be exhausted in less than two centuries at the present rate of consumption or in 60 years if the consumption should continue to increase in the ratio of the past. There are potential reserves of ore, not now available but which may become so under changed conditions, sufficient to supply the requirements for a much longer time.

R. A. F. Penrose contributed some interesting data on the occurrence and causes of ore shoots, by which name it is customary to designate the richer parts of metalliferous veins or other mineral deposits. These localized aggregations of ore are due to various chemical and physical influences, acting singly or in combination. Segregation of the heavier components during the cooling of a magma; the occurrence of local vents, like those of fumaroles and hot springs; structural features of the wall rocks; the nature of the country rock itself; and secondary alteration are some of the causes assigned in the paper.

The theory of secondary enrichment of ore deposits was the subject of an extended discussion by American geologists which served to place it on a firm basis as well as to facilitate its application. The theory, it may be explained, refers to the downward migration of the metallic constituents of an ore body after their original deposition. It was shown that the process had been effective in many of the copper deposits of the West, copper minerals being especially prone to such migration owing to their easy solubility in the presence of ground waters. To this agency may be ascribed the very rich accumulations of copper ores, like those of Butte, that are not infrequently encountered below a zone of lean or almost barren material. Secondary enrichment would seem to be less effective in the case of the more insoluble minerals, like gold, silver and lead, though some of the writers believed its influence to be recognizable in some instances.

**AGE OF THE EARTH.** In an important contribution to the subject of the age of the earth, G. F. Becker reviewed the results and methods of Kelvin, Joly and others who have attacked the problem and gave some new determinations based on data more reliable than those hitherto available. As a starting point for calculation, the beginning of the earth has been assumed usually at the time when it had so far cooled as to permit the accumulation of water on its surface, in the form of permanent oceans. The problem then may be resolved into a calculation of the age of the ocean. One method of attack is that followed by Joly, who computed the quantity of sodium present in sea water and the amount annually contributed by rivers; the former total divided by the latter gave a value of 97,600,000 years as the probable age of the ocean. Becker would modify the method on the ground that the accumulation of sodium was probably more rapid in early ages, when larger areas of feldspathic rocks were exposed to atmospheric denudation, than at present. Thus, assuming that the accumulation is an asymptotic process, a modified value of 74,000,000 years is deduced for the maximum age of the ocean. The weak point in this method lies in the possibility that the primitive ocean was salt, or that it contained continents within its basin; either pos-



QUEEN MARY OF ENGLAND



KING GEORGE V. OF ENGLAND

22  
21  
20  
19

sibility would affect the accuracy of a minimum value, though it would not alter that given for a maximum. If neither possibility was realized, the minimum would be about 46,000,000 years. The method of estimation based on the progress of refrigeration of the earth from a molten state, as developed by Lord Kelvin, may be modified in the light of recent work on isostatic compensation, and on that basis Becker finds a maximum of 75,000,000 years and a minimum of 55,000,000 years. Both methods thus yield results which are close enough to be mutually confirmatory. A third means of attack is based on the time required for the deposition of the stratified rocks. Walcott has placed the opening of the Cambrian period at 27,640,000 years ago; Becker would assign to Pre-Cambrian time a similar order of magnitude, making the total between 50,000,000 and 65,000,000 years. The results obtained by the different methods converge toward a value of about 60,000,000 years, which may be accepted as the nearest approximation possible with the data at hand.

**GEORGE V.** King of the United Kingdom of Great Britain and Ireland and of all the British Dominions beyond the seas, Emperor of India, succeeded to the throne on the death of his father, King Edward VII, May 6, 1910. He was born on July 3, 1865, the second son of King Edward. He entered the direct line of succession only after the death of his elder brother, the Duke of Clarence, in 1892. He was baptized with the names of George Frederick Ernest Albert. With his elder brother, the Duke of Clarence, he entered the navy as a cadet in 1877, and after spending two years in the training ship *Britannia* started for a three years' voyage around the world on board the *Bacchante*. He was made a midshipman on the *Canada* in 1883. This vessel was then on the North American and West Indian stations. In 1885 he became a lieutenant, and in 1890 was given a separate command on the gunboat *Thrush* on the North American Station. In 1891 he was made commander. In the following year, as noted above, through the death of his elder brother, he became heir to the throne and took his seat in the House of Lords as the Duke of York. In the same year he took command of the *Melampus* for the naval manœuvres. In May, 1893, his engagement to the Princess Victoria Mary of Teck was announced. This Princess had previously been the fiancée of the Duke of Clarence. The marriage was celebrated at St. James's Palace on July 6, 1893. During 1898 the Prince for some time was in command of the battleship *Crescent* attached to the Channel Squadron. He was promoted to the rank of rear-admiral in 1901 and was appointed Colonel-in-chief of the Royal marine forces. On the death of Queen Victoria in 1901 he succeeded his father as the Duke of Cornwall. In 1901 he undertook, as Duke of Cornwall and York, the great Imperial Mission through which he became widely known to his subjects in the Over Seas dominions of the Crown. He visited Australia where he opened the first Parliament of the Commonwealth and then went to New Zealand and finally to Canada and Newfoundland. On November 9, 1901, the birthday of King Edward, he was given the title of Prince of Wales and Earl of Chester. On the return of the Prince from his tour to Australia and Canada, he was entertained by the London Corporation at the Guildhall, December 5, 1901. On this occasion he delivered a memor-

able speech beginning with the phrase "Wake up, England." In June, 1902, he was promoted to the rank of general. On October 19, 1905, in company with the Princess of Wales, he left London for a visit to India and landed at Bombay on November 9. This tour was a great success and everywhere he was received with the greatest enthusiasm. At Calcutta he laid the foundation stone of the Victoria Memorial Hall and took part in many other important ceremonies in different parts of India. On the return home the Prince paid a visit to the Khedive of Egypt at Cairo. On his arrival in England the Prince received a civic welcome at the Mansion House where he said in a speech of unusual length and interest that "the task of governing India would be made easier if we, on our part, infuse into it a wider element of sympathy." The King, as Prince of Wales, was not so well known as his father when he occupied the same position. This was largely due to his temperament which inclined him to a more serious mode of life. It was well known, however, that he was a student of public affairs and had a deep interest in the welfare of the empire.

The King's marriage was a happy one and his chief enjoyment has been in the retirement of his family. There were born to the King and Queen five sons and one daughter: Prince Edward Albert, born June 23, 1894, now heir-apparent; Prince Albert Frederick, born 1895; Princess Victoria Alexandra, born 1897; Prince Henry, born 1900; Prince George, born 1902; and Prince John, born 1905. For details of the Coronation, see GREAT BRITAIN.

**GEORGETOWN UNIVERSITY.** An institution of higher learning at Washington, D. C., founded in 1789. The total number of students for the year 1909-10 was 1085, while the faculty numbered 158. Among the notable changes in the faculty during the year were the following: Reverend John F. Quirk was elected Vice-President to succeed Reverend John J. Fleming, resigned; Hon. Hannis Taylor was appointed to the chair of international law in place of Hon. Wade Ellis, resigned. The following noteworthy benefactions were received during the year: From E. Francis Riggs, \$10,000 for the library; from A. Lisner, \$25,000 for the hospital. A seismograph station with both vertical and horizontal instruments was installed during the year. The capacity of the law school was doubled. There are about 100,000 volumes in the library. The income for the current year was \$328,331. The President is Rev. Joseph J. Hannel, S. J.

**GEORGIA.** One of the South Atlantic Division of the United States and one of the thirteen original States. It has an area of 59,265 square miles of which 5040 square miles are water. The capital is Atlanta.

**POPULATION.** The population in 1910, according to the Thirteenth Census, was 2,609,121 as compared with 2,216,331 in 1900 and 1,837,353 in 1890. The increase in the decade 1900 to 1910 was 17.7 per cent. The State ranks tenth in point of population whereas in 1900 it ranked eleventh. The population of the larger cities and towns will be found in the article UNITED STATES CENSUS. The increased industrial importance of the State is reflected in the gain in population in several of the larger cities, notably in Atlanta and Savannah, as will be seen from the tables in that article.

**MINERAL PRODUCTION.** The chief products of

the State are coal and iron. In 1909 the total production of coal was 211,196 short tons, having a spot value of \$298,792, a decrease of 53,626 short tons in quantity and \$65,487 in value from 1908. The coal production in the State has shown a decreasing tendency since 1903. The production in 1909 was the smallest since 1897. During the year 1909 there were two fatal and 56 non-fatal accidents in the coal mines of the State. Coke is also manufactured in considerable quantities and large amounts of asbestos and bauxite are mined. Gold was produced in 1910 to the value of \$25,488, as compared with a value of \$43,400 in 1909. A small quantity of silver was also mined. Among other products of the mines and quarries of the State are Portland cement, pyrite, precious stones, copper, lead, and mineral waters.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909-10 are shown in the following table:

	Acreage	Prod. bu	Value
Corn, 1910.....	4,532,000	66,714,000	\$51,257,000
1909.....	4,400,000	61,160,000	52,598,000
Winter			
Wheat, 1910.....	260,000	2,730,000	3,549,000
1909.....	245,000	2,450,000	3,552,000
Oats, 1910.....	343,000	6,243,000	3,996,000
1909.....	350,000	6,650,000	4,722,000
Rye, 1910.....	14,000	146,000	204,000
1909.....	4,000	88,000	66,000
Rice, 1910.....	4,200	100,000	87,000
1909.....	10,000	820,000	861,000
Potatoes, 1910.....	10,000	810,000	810,000
1909.....	87,000	122,000a	2,001,000
Hay, 1910.....	87,000	117,000	1,849,000
1909.....	3,500	2,380,000b	547,000
Tobacco, 1910.....	2,100	1,470,000c	499,800
1909.....	.....	1,750,000c	.....
Cotton, 1910.....	.....	1,804,014	.....
1909.....	.....	.....	.....

a Tons. b Pounds. c Bales.

**EDUCATION.** The total enrollment of pupils in the schools in the year ending December 31, 1909, was 547,912. Of these 316,315 were white, and 213,386 were colored. The total attendance was 211,854 white and 145,856 colored. The average monthly salaries of white male teachers was \$58.34; of white female teachers, \$37.48; colored male teachers, \$26.37; and colored female teachers, \$19.55 in the counties. In the cities the average monthly salary of the white male teachers was \$104.32; female, 147.76; colored male teachers, \$45.53; and colored female teachers, \$25.83.

The legislature of 1910 passed several important measures relating to education. These were chiefly concerned with raising money by taxation for school purposes.

**POLITICS AND GOVERNMENT.** The Georgia legislature convenes on the 4th Wednesday in June each year. The session of 1910 began on June 22 and lasted 50 days, the constitutional limit of the annual session. Several important measures were passed, chiefly of a local nature. On July 18 the income tax amendment to the constitution was ratified by the Assembly, following favorable action by the Senate.

**ELECTIONS.** Democratic primaries were held on August 23, for the nomination for governor of the State. Hoke Smith, former governor, was the candidate against Governor Joseph M. Brown, who wished the renomination. Mr. Smith, then governor, had been defeated two years before by Brown. It was a fight to get back by Smith, and to stay in by Brown.

While Mr. Smith was governor in 1908-9 he secured laws for disfranchising negroes, and for drastic regulation of elections, closing registration books six months before elections. Brown opposed the six months closing, holding that 90 days was enough.

On Brown's succession to the governorship he urged the repeal of this law, but the legislature refused. It was on these issues that the campaign was waged. The result was a victory for Mr. Smith and he accordingly became Democratic nominee for the governorship which, in Georgia, was practically equivalent to election. The primaries were held at the same time for seats in Congress and a notable result was the defeat of Congressman Livingston, one of the oldest members of the House in point of service. He was defeated by W. Schley Howard. Mr. Livingston's defeat was attributed to the fact that he had supported Speaker Cannon in the fight on the rules in the House contrary to the wishes of his party in the State. Tom E. Watson, the former Populist, made a strong effort to defeat Congressman Hardwick of the Tenth District, but in spite of his efforts the latter was renominated. Mr. Watson has been for many years a notable figure in State politics, and it was considered that his influence was diminished, if not entirely eliminated by the victory of Mr. Hardwick. The Democratic State Convention which met in September indorsed all the measures advocated by Smith while he was governor and indorsed a plank in the platform asking the railway commission to secure cheaper rates from the ports to the interior. The vote for Smith in the convention was 233 against 135 for Governor Brown. The Brown delegates left the hall after the roll call. In spite of the fact that he was defeated in convention, many of Brown's supporters ran him for governor as an Independent Democrat, although he voted for the regular ticket. On October 5, the elections for governor were held and resulted in a decisive victory for Mr. Smith. His majority exceeded 75,000. Mr. Brown's vote throughout the State was very small. In some counties not a ballot was cast for him. All the Democratic nominees for State and county offices were elected. Owing to the candidacy of Mr. Brown the vote was much larger than that normally cast in the general elections, which is usually considered a matter of form only. Three constitutional amendments were adopted at the election. One of these provides that counties may levy taxes in support of high schools. The others are local in effect.

Alexander Stephens Clay (q. v.) United States Senator from Georgia, died November 13, 1910, and Governor Brown appointed former Governor Joseph M. Turrell to fill out the unexpired term.

An important decision affecting the enforcement of prohibition in the State was handed down by Judge Newman of the United States Circuit Court. He decided that government gauger Stegall need not testify before a Georgia grand jury as to violation of the prohibition law. This official refused to testify before the Dade county grand jury in relation to the operation of a "wildcat" still and was sent to jail by Judge A. W. Fite. He was brought before Judge Newman on a writ of habeas corpus, who rendered the decision referred to.

**STATE OFFICERS.** Governor, Hoke Smith; Secretary of State, Philip Cook; Treasurer, William J. Speer; Comptroller and ex-officio

Com. of Insurance, W. A. Wright; Attorney General, Thomas S. Feeder; Supt. of Education, M. L. Brittain; Commissioner of Agriculture, Thos. G. Hudson—all Democrats.

**SUPREME COURT.** Chief Justice William H. Fish; Beverly D. Evans, Presiding Justice; Associate Justices, J. H. Lumpkin, M. W. Beck, and Samuel C. Atkinson; Clerk, Z. D. Harrison—all Democrats.

**STATE LEGISLATURE 1911.** Democrats, Senate, 43; House, 182; joint ballot, 225; Republicans, Senate, 1; House, 1; joint ballot, 2; Democratic majority, Senate, 42; House, 181; joint ballot, 233.

**GEORGIAN BAY CANAL.** See CANADA, *Industrial Affairs.*

**GERHARDT, DAGOBERT VON.** A German soldier, poet, and novelist, better known under the pen-name Gerhard von Amyntor, died February 24, 1910. He was born at Liegnitz in 1831. After attending the University he entered the Prussian army and advanced to the rank of major. He was severely wounded in the assault on the fortifications of Düppel during the Danish War of 1864 and in 1867 he was employed by Moltke on the General Staff at Berlin. He served in the Franco-German War, 1870-71. He became known chiefly through his numerous novels, such as *Der neue Romanzero* (2d ed. 1883); *Die Cis Moll Sonate* (1891), and *Ein Kampf um Gott* (1902). His earlier works include the *Hypochondrische Plandereien* (4th ed. 1875, new series; 3d ed., 1890).

**GERMAN ARCHITECTURE.** See ARCHITECTURE.

**GERMAN BAPTIST BRETHREN.** See BRETHREN, CHURCH OF.

**GERMAN DRAMA.** See GERMAN LITERATURE.

**GERMAN EAST AFRICA.** A German protectorate bordering upon the Indian Ocean. Estimated area, 365,000 square miles; estimated population, 7,000,000, largely of mixed Bantu race. Europeans (1908), 2845. Arabs, Syrians, and East Indians inhabit the coast regions. Capital, Dar-es-Salaam, with 24,000 inhabitants; Tabora has 37,000; Ujiji, 14,000; Tanga, 5690 (all estimates). Government schools (1908), 31, with 14 European and 77 native teachers and 3821 pupils. The mission schools have over 16,500 pupils. German plantations raise cacao, coffee, vanilla, tobacco, rubber, sugar, tea, cotton, cocoanuts, cardamon, cinchona, and fibre plants. There were (1905), 523,052 cattle and 3,380,492 sheep and goats. Minerals are known to exist, and large quantities of gems. Imports (1908), 25,786,771 marks (cotton, rice, food-stuffs, hardware, and iron); exports, 10,873,856 marks (rubber, 991,724 marks; copra, 800,202; ivory, 561,946; coffee, 801,462; sisal, 2,685,633; wax, 699,309). The trade is mainly with Zanzibar and Germany. Vessels entered (1908), 1057, of 1,507,427 tons; besides 4186 dhows, of 87,669. The railway from Tanga to Muhesa, Korogwe, and Mombo is 82 miles long; the extension to Buiko (opened July, 1909) and from Dar-es-Salaam to Mrogoro, 130 miles. An extension from Mrogoro to Kilimatinde (240 miles) is building. Telegraph lines, 1500 miles; offices, 26. Post-offices, 39. Revenue and expenditure for the year 1909-10, estimated at 31,759,000 marks (including imperial subvention of 3,579,

000). Governor (1910), Baron von Rechenberg. See EXPLORATION, paragraphs on *Detailed Surveys of Africa*, and *SLEEPING SICKNESS.*

**GERMAN EVANGELICAL SYNOD OF NORTH AMERICA.** A religious denomination, founded in 1840 at Gravois Settlement near St. Louis as the Evangelical Church Association of the West. It was organized by six German pastors for the purpose of making provision for the religious needs of the pioneer German immigrants. It united successively with the German Evangelical Church Association of Ohio, 1858, and the United Evangelical Synod of North America. Doctrinally this synod represents the Prussian Union of 1870. The strength of the organization, which comprises eighteen districts, covering almost all the States of the Union and parts of Canada, is greatest in the Central and North Central States. The most recent statistics show 1034 pastors, 1321 churches, 259,593 communicants and 114,372 Sunday school scholars. The total value of church property in 1910 was \$13,281,202; the amount contributed for the maintenance of churches was \$1,647,468; for church work and benevolences, \$155,181. Foreign missions are actively carried on in the Central provinces of India by nine men missionaries, 8 women missionaries, 67 native helpers and 114 native teachers. The denomination maintains Elmhurst College at Elmhurst, Ill., and Eden Theological Seminary at St. Louis. The work of the synod, which was formerly carried on exclusively in the German language, is now, to a considerable extent, being done in English, especially in the large cities. The official organs are *Der Friedensbote* and *The Messenger of Peace*. A number of other periodicals, covering all departments of church work, are issued in both languages. Charitable institutions are maintained for orphans, superannuated ministers and the widows and orphans of deceased ministers in different parts of the synod.

**GERMANIUM.** See ATOMIC WEIGHTS.

**GERMAN LITERATURE.** To the tumultuous pace of a decade ago the even tenor of literary life in Germany during the past year offers a striking contrast. All sensationalism, either critical or commercial, seems to have been discarded; it has had no secessionist manifestoes nor clamorous advertisements. It has lacked the mild excitement furnished by an exceptionally great seller or an unusual stage hit. Even Frenssen's latest and very creditable work, *Klaus Hinrich Baas*, which at the end of the previous year had promised to outrun its competitors, rapidly disappeared from the list of books most in demand.

None of the plays of the year have held the boards so long and so successfully as Ludwig Thomas's *Moral* in 1908-9 and *Alt Heidelberg* in a previous season, not to mention the success of *Die blaue Maus*. The dramatic world had not even been stirred by disputes over a prize competition as it was in 1908 at the distribution of the Schiller prize. The annual report on the repertoire of the German stage for the year ending in August, 1909, had proved that the French farce, or its German off-spring, and the musical comedy of *The Girl and the Kaiser* type, hold sway abroad as they do in America; and a glance at more recent statistics corroborates the inference.

The only book that profoundly agitated the minds of German readers has been Enrica Händel-Mazetti's story *Die arme Margaret*, which induced the Catholic press to accuse the author of Modernism and in return called forth from her a protest and the statement that her writings are firmly anchored in the Roman-Catholic faith. Another incident would ten years ago have aroused a storm of indignation, but passed by almost unnoticed; it was the libel case of a prominent publisher against the official organ of the conservative "Centre," which had called his publications pornographic, among the works thus branded being those of Stendhal, the philosopher Kierkegaard and the nature-writer Bölsche. Nor did the distinction of Paul Heyse by the Nobel prize call forth any comment from the young generation which had so often made him the butt of unwarranted animosity, yet the literary activity of the country has been in no way smaller than in previous years; on the contrary, the bulk of it seems greater than ever, and the unavoidable discrepancy between quantity and quality is not too much in evidence.

**FICTION.** Of the novels of the year the one which appeared at the beginning and the one which was published shortly before its close are likely to dominate the market for some time. *Die arme Margaret* by Enrica Händel-Mazetti is a story of the crusades distinguished by unusual dramatic intensity and tender poetic feeling. *Emanuel Quint* by Gerhart Hauptmann is the first long novel from the pen of the author and is bound to excite profound interest, his hero being of the Nazarene type and the record of his life offering a reply to the questions "What would Christ do in the World to-day?" and "What would the World do to Christ to-day?" The work is proof that in spite of his recent dramatic failures Hauptmann has not stood still, but developed in a new direction. Among novels with a historical setting Ricarda Huch's *Das Leben des Grafen Federico Gonzaloni* is a fair specimen of the author's exquisite style. The poet Friedrich Lienhard has appeared as the author of a novel of the French Revolution in an Alsatian milieu, Oberlin, suggesting the spirit of the time from the æsthetic period antedating the upheaval to its religious postlude. Another poet, Rainer Maria Rilke, makes a symphony of life and death out of the story of an old Danish nobleman, called *Die Aufzeichnungen des Malte Laurids Brigge*. While these stories deal with the past and the present there have been at least two attempts to give a forecast of the future. Wilhelm Hegeler's *Die frohe Botschaft* is a Utopian novel ranking artistically as high as previous works of the author; Alexander Ular's *Die Zwergenschlacht*, however, suggesting a world's peace trust, is devoid of literary merit. Novels deriving their interest mainly from the more or less effective suggestion of the place and the period of the story are very numerous; among them are Hermann Anders Krüger's story of Herenhutian life, *Kaspar Krumholtz*, Karl Hans Strobl's story of the Silesian border, *Der brennende Berg*, Max Burkhardt's *Trinacria*, painting Sicilian life, and towering above them *Die vor den Toren* by Clara Viebig, a remarkably forcible and convincing story of the corruption spreading in the middle class of Berlin when the building boom that followed the victory of Sedan metropolized remote and simple suburbs. Among the psychological novels of the year

Jakob Wassermann's *Die Masken des Erwin Reiners* is an admirable achievement vaguely suggesting the influence of Oscar Wilde; Friedrich Huch's *Enzio* is a striking study of the musical temperament; Norbert Jacques's *Der Hafen*, of a weak and dissolute character; Hermann Bahr's *O Mensch*, of those modern Austrian types so splendidly portrayed in *Die Rahl* and *Drut*; Jakob Schaffner's *Konrad Pilater*, of youth seeking a goal indefinite; and George von Ompteda's *Benigna*, of a woman's life. But the finest work from every point of view is Ernst Heilborn's story of a man at the critical stage when age lurks upon the threshold and youth still asserts its longings and desires: *Die steile Stufe*. Volumes of short stories have been numerous. Noteworthy documents of lives, simple and unsophisticated are the stories by Clara Viebig *Die heilige Einfalt*; of a more complicated character those by Bernardine Schulze-Smidt: *Allerlei Volk*, with their admirable suggestion of local atmosphere. Hugo Salus does not deny his lyric voice in the stories called *Schwache Helden*. Raoul Auernheimer cultivates the clever society satire in his sketches *Gesellschaft*. There have been posthumous volumes by Rudolf Lindau and Otto Julius Bierbaum.

**DRAMA.** The greatest success of the dramatic season in Germany has also been among the greatest in America: Hermann Bahr's comedy, *Das Konzert*. Hermann Sudermann's mediæval drama of the Baltic shores *Strandkinder* which opened to him the sacred portals of the court theatre, failed, however, to satisfy the demands of the critics. Of the young contemporaries of Sudermann and Hauptmann, George Hirschfeld, once the most promising, experiences failure after failure, *Das zweite Leben* being another weak performance. Hugo von Hofmannsthal, who so far has been rather lucky, also failed with his comedy *Christina's Heimreise*. Of the older generation Adolf Wilbrandt's tragedy *Das verschleierte Bild zu Sais* and Ludwig Fulda's play *Herr und Diener* had likewise a cool reception. Heinrich Lilienfeld who a few years ago was one of the most promising newcomers, has gradually conventionalized his individual talent and his *Stier von Oliveira* cannot compare with his earlier work. H. Müller's neo-romanticism, though clad in exquisite language, fails to make an impression when presented on the stage, as *Die Wunder des Beatus* proved. He shares the fate of Adolf Paul, who, though an individuality of quite a different stamp, has also learned that the poetic and romantic qualities of his play, *Blauer Dunst*, were rather a hindrance than an advantage on the stage. It is significant of the attitude of German managers towards new and untried plays that even works so manifestly fit only for reading, as Carl Hauptmann's *Panspiele* should nevertheless be given a hearing; but it is not likely to be repeated. Another author who has a number of *Buchdramen* to his credit, Hans von Gumpenberg, has, however, achieved a success with the one-act comedy *Münchhausen's Antwort*. A unique experiment was the performance of the legendary drama, *Das Weiß des Vollendeten* by the German-writing Dane, Karl Gjellerup. Arthur Schnitzler, physician and dramatist, who has proved himself such a subtle analyst of the souls of men of his time, has turned back a hundred years and given us a most remarkable study of character in the drama *Der junge Medardus*, which he calls a dramatic history

with a prelude, and which presents a picture of Vienna in the Bonaparte year 1809. He has also published a marionette play, *Der tapfere Cassian*. One of the most successful works by a newcomer has been the Russian revolutionary drama *Der Moloch* by Leo G. Birinski. Frank Wedekind continues to send out the curiously grotesque coruscations of his fancy: *In allen Wassern gewaschen*, a tragi-comedy, is as impudent a bit of naturalism as anything that has come from his pen, while *Der Stein der Weisen*, a one-act play in verse, is an admirable satire. There has been no lack of dramas founded upon well-worn themes and challenging comparison with earlier works. An ambitious but commendable first work was Hans Franck's tragedy, *Der Herzog von Reichstadt*. Gustav Renner's *Francesca* is also said to be an acceptable version of the old story. Paul Ernst's *Demetrius* adds to the list of dramas endeavoring to complete the torso of Schiller's pretender-tragedy. Another Schiller-fragment, *Warbeck*, has been skillfully used by Hermann Rottke and well received at its initial performance.

**POETRY.** The poetical production has been somewhat meagre in proportion to that of other years. A work of distinction and genuine poetical qualities is Carl Hauptmann's volume of verse and prose entitled *Aus meinem Tagebuch*, and containing exquisite lyrical mood pictures and stimulating philosophical reflections. Ernst Lissauer, who some years ago made his debut with a volume of verse of pronounced individuality *Der Acker*, has published a revised and enlarged edition of the same book. Gustav Falke, who is classed with the group of rebellious young Germans though he kept aloof from its idiosyncrasies, has sent out a volume of verse called *Die Auswahl*. Carl Busse, who gradually conventionalized his muse until it became almost popular, has published a new volume, *Heilige Not*. It is singular that in this unpoetic age there are poets who manage to publish two volumes within one year, as Christian Morgenstern, the author of *Einkkehr* and *Palmstrom*, or even three as Max Dauthendey, the author of *Weltspuk*, *Schwarze Sonne* and *Die geflügelte Erde*, genuine specimens of his somewhat errant imagination and impressionistic vision. Whoever has admired the lyrical qualities in the fiction of Ernst Zahn was not surprised when he appeared as the author of a volume of verse, *Gedichte*. Of the poets of the older generation Ludwig Fulda has been the only one heard from through his *Melodien*, an enlarged edition of his recent verse. A posthumous volume bearing the name of Heinrich Leuthold is of unusual interest, the poems having been reconstructed from the manuscripts of the neglected author. Lastly there have been two volumes of poems by Frieda Schanz, who is perhaps the most popular, though by no means the most gifted among the women poets of Germany: *Balladen* and *Italienische Pastelle*. The year has been remarkable, however, for the publication of several valuable anthologies. Foremost among them is the dainty volume by Karl Henckell, called *Weltlyrik*, and containing specimens of modern poetry of France, Italy, England, Russia, America, and other countries, in commendable translations by the author, himself a striking poetic personality. A handy and inclusive collection of German poetry is published in two volumes by Willy Vesper and covers eight centuries of German verse. An-

other collection in two volumes is entitled *Die neuere deutsche Lyrik* and is edited by Philipp Witkop. Lastly there has appeared a new and enlarged edition of Maximilian Bern's *Dichtungen vom Brettl und fürs Brettl*, containing perhaps the best collection of poetry suitable for recitation.

**ESSAYS, TRAVEL, HUMOR.** Prose of infinite variety has flooded the book market of the year and among it are some delightful books. Richard Schaukal's *causeries*, *Vom unsichtbaren Königreich*, are distinguished by the same rare and refined qualities as his poems. Theodor Wolff's *Spaziergänge* are in lighter vein, but more brilliant. Emil Reich's *Aus Leben und Dichtung* is a book containing no little philosophy of life and art. Carl Ludwig Schleich is the author of a book entitled *Von der Seele*, which is full of stimulating and illuminating reflections on matters spiritual and æsthetic. Posthumous volumes of aphorisms have come from Ernst von Wildenbruch, *Blätter vom Lebensbaum* and Georg von Oertzen, *Nebensachen*. Paul Friedrich's volume, called *Das dritte Reich* records the tragedy of individualism and Hans W. Fischer's *Der Dreissigjährige* stands entirely apart as an interpretation of life and a sermon on manhood. Among the books of travel Ludwig Brinckmann's volume of American impressions, *Eroberer*, challenges serious attention. Isolde Kurz has sent out a charming volume of Florentine reminiscences, *Florentinische Erinnerungen*, Richard Voss dwells upon his Roman days in *Du mein Italien*, Karl Hans Strobl has written a *Romantische Reise im Orient*, Paul Barcham reflects modern Russia in *Petersburger Nächte*, and Karl Scheffler draws a portrait of Berlin. An entertaining book on hunting is Fritz Skowronnek's *Halali*. A commendable undertaking is that of Roda Roda, the well-known contributor to *Simplizissimus* and Theodor Etzel, called *Welthumor*. Of this collection of the world's best humor the volume called *Das lachende Deutschland* is an excellent specimen and one that augurs well for the volumes to come. Selections from the writings of Otto Ernst have been published under the title *Gesund und frohen Mutes*, and Wilhelm Rullman has undertaken to gather some of the wit and humor of the day, culled from the press and other sources, under the title *Witz und Humor*. A brilliant specimen of Paul Scheerbart's grotesque humor is the story of an invention, *Das Perpetuum mobile*.

**HISTORY, BIOGRAPHY, ETC.** Valuable additions to history are the works by Dr. Albrecht Wirth, *Weltgeschichte*, and Oskar Jäger, *Deutsche Geschichte*. Historical studies are contained in the books by Hermann Oldenburg, *Aus dem alten Indien*, and R. Dagobert Schoenfeld, *An nordischen Königshöfen*. Inclusive studies of the customs and manners of civilized society are the works by Edward Fuchs: *Die galante Zeit* and by Alexander von Gleichen-Russwurm, *Sitten und Gebräuche der europäischen Welt*. Glimpses of biography are contained in Adolf Kohut's book: *Aus dem Herzensarchiv verliefener Berühmtheiten*. Contributions to Goethe biography are Alfred Biese's *Goethe und seine Mutter*, Karl Muthesius's *Goethe und Karl Alexander*, Arthur Rehbein's *Studiosus Goethe in Leipzig und Strassburg*, and others. Schiller biography was increased by George Witkowski's *Aus Schillers Werkstatt* giving an insight into his methods of work. Ibsen literature was en-

riched by Roman Woerner's *Ibsen* and Dr. Wilhelm Hau's *Ibsens Selbstportrait in seinen Dramen*. Wilhelm Fisher-Graz has given us a portrait and Hans Bédard a life of Nietzsche. Kurt Kuechler has stimulated interest in Hebbel by a book on his life and works. August Ehrhard's life of Grillparzer has been translated by Moritz Necker. There has been published a life of Platen by Constantia Ritter and a record of his intellectual development by Dr. Rudolf Schloesser. Arthur Schurig has recorded the story of Wilhelm Heinse's youth, and Dr. Hans Henning is the author of a life of Spielhagen. John Henry Mackay's life of Stirner has gone into a second revised and much enlarged edition.

**LITERATURE, CRITICISM, ETC.** Foremost among numerous works on German literature is the book by Dr. Kuno Francke which has grown out of his *Social Forces in German Literature* published a few years ago; it is entitled *Kulturwerte der deutschen Literatur* and the first volume makes one eager to see how the author is going to work out the central idea in the following. Of Richard M. Meyer's German Literature of the nineteenth century a fourth revised edition has been published; of Adolf Bartels's work on the same subject the eighth edition, and a book by J. Schilling covers the same ground. Karl Weitbrecht has written a history of German letters in the classical period, Dr. Adolf Voigtlin a history of German poetry, and Kurt Martens a useful little handbook on German writers of the present, *Literatur in Deutschland*. The world's literature has been comprehensively treated by Dr. Carl Busse, *Geschichte der Weltliteratur*, and Dr. Otto Hauser, *Weltgeschichte der Literatur*, both in two volumes. Nikolaus Welter is the author of a history of French letters. Otto Hartmann's history of the book-trade *Die Entwicklung der Literatur und des Buchhandels* and Robert F. Arnold's *Allgemeine Buecherkunde zur neueren deutschen Literaturgeschichte* are valuable reference works. Among the numerous psychological and critical studies of contemporaries the book by Maximilian Harden ranks first: *Köpfe*; it contains portraits of the old Emperor William, Empress Frederick, Bismarck and Johanna Bismarck, Eugen Richter, Dr. Stöcker, Gallifet, Holstein, Waldersee, Ibsen, Zola, Matkowsky, Wolter, Mitterwurz, Menzel, Böcklin, and Lenbach. Under the title *Blühender Lorbeer* Otto Ernst talks interestingly about his literary colleagues and compatriots. Eduard Schwarz is the author of a book entitled *Charakterköpfe aus der antiken Literatur* and Max Willaert of Dante Alighieri and seine Zeit. Among the critical contributions to Goethe Literature the most important are the book of Stefan George and Karl Wolfskehl and Wasielewski's *Goethes meteorologische Studien*. Robert Saudeck has added to the literature on Schiller a study entitled *Schiller als Realist*. A. Boehlingk is the author of a book called *Shakespeare und unsere Klassiker*; Dr. Raphael Bazardjian in his *Kritik über das Ibsensche Theater* draws interesting comparisons between Sophocles, Shakespeare and Ibsen. Wilhelm Dibelius has treated English fiction in an inclusive work *Englische Romankunst*; and Julius Bab is the author of a book on George Bernard Shaw. Dr. E. Dühring's book *Die Grössen der modernen Literatur* contains studies of Rousseau, Schiller, Byron and Shelley, and Alexander Eliasberg's *Die grossen Russen* presents the

great Russian writers of the century in well translated specimens of their works. A sympathetic study of Verhaeren is that by Stefan Zweig. *Die neue Form* by Dr. O. E. Lessing is an attempt at interpretation of German naturalism. There have been psychological and critical studies of Frankl, Schubert, Jordan, Heyse, Speidel, Zedlitz, Fouqué, Geibel, Raabe, Wildenbruch, Carl Hauptmann and others.

**MISCELLANEOUS.** Correspondence has figured largely in the book market of the year. Richard M. Meyer has published the collected letters of Goethe and his friends; there have been letters by Schiller, Theodor Storm, Wackenroder, Lenau, Hölderlin, Haller, Iffland, Fontane, Freiligrath and others. Another volume of the conversations of Goethe has appeared, covering the period from the death of Karl August to the year 1828. Dr. M. Schütte has written a book on the Goethe-National-Museum in Weimar; the Goethe-Kalendar begun by Bierbaum has been continued by W. Schüddekopf, and Ludwig Geiger has sent out another volume of his *Goethe-Jahrbuch*. An interesting study is that of Karl Sell on *Die Religion unserer Klassiker*. The relation of the Jews to German literature was treated in a book by Ludwig Geiger. Dr. Franz Strich is the author of a book on the element of mythology in German literature from Klopstock to Wagner. P. M. Huber has written a bulky volume of folklore study, *Die Wanderlegende von den sieben Schläfern*, and Rudolf Buchmann is the author of *Helden und Mächte des romantischen Kunstmärchens*. Among new editions or new volumes in editions previously begun there are 14 of Goethe, several of Schiller, and Kleist, Arndt, Lenz, Heine, Lenau, Büchner and Nietzsche have likewise been reissued. There have been numerous translations of foreign works, among them another volume of Lafcadio Hearn, *Buddha*; works by Dostoyevski, Swinburne, Maeterlinck, d'Annunzio, Tolstoy, Strindberg, Shaw, Wells, Galworthy, Zangwill and others. Among American authors thus honored Jennette Lee's *Uncle William* heads the list; next come *Old Chester Tales* by Margaret Deland and Mrs. Little's *Lady of the Decoration*.

Death has removed a number of prominent writers, among them Otto Julius Bierbaum, Rudolf Lindau, Julius Wolff, Ludwig Hevesi, Hermann Heiberg, Kurt Lasswitz and Gerhard von Amyntor.

**GERMAN METHODIST CHURCH.** See EVANGELICAL ASSOCIATION.

**GERMAN MUSIC.** See MUSIC.

**GERMAN NEW GUINEA, or KAISER WILHELM LAND.** A German protectorate occupying the northeastern portion of the island of New Guinea. Estimated area, about 70,000 square miles; estimated population, about 110,000 natives, whites (1900) 197. There are mission schools. Coconuts, rubber, cabinet woods, copra, mother-of-pearl, and trepang are the chief articles of trade. Imports (1903), 722,538 marks; exports (mostly copra), 281,181 marks; tonnage, 82,381; revenue and expenditure (1909-10), 1,808,835 marks; imperial subvention, 1,065,000. Attached administratively to German New Guinea are the Caroline Islands, the Bismarck Archipelago, the Ladrone Islands, the German Solomon Islands, and the Marshall Islands (qq. v.). The governor (1910, Dr. Hahl) resides at Harbertshöhe in the Bismarck Archi-

pelago. The German-Dutch boundary commission began the work of delimitation in 1910.

It was reported in December that an uprising had taken place in the Caroline Islands owing to discontent with the German road-building policy and that four German officials and five native employes had been murdered at Jokor. Troops were at once sent to the island to restore order.

**GERMAN REFORMED CHURCH.** See REFORMED CHURCH IN THE UNITED STATES (GERMAN).

**GERMAN SAMOA.** A German dependency in the southern Pacific, including Savaii and Upolu (the largest of the Samoan Islands), and several adjacent islets exceedingly fertile and populous. Area of Savaii, about 660 square miles; Upolu, 340. Population (1906), 33,478 (Upolu, Manono, and Apolima, 20,662; Savaii, 12,816), mostly Polynesians. Whites in 1909, 467; Chinese, 1050. Imports (1908), 2,482,406 marks; exports (mostly copra), 2,671,233 marks; tonnage, 117,586; revenue and expenditure (1909-10), 764,000 marks. The governor (1910, Dr. Solf) resides at Apia, in Upolu.

**GERMAN SOLOMON ISLANDS.** The islands of Bougainville and Buka, in the southern Pacific, attached administratively to German New Guinea. Area, about 4500 square miles; population, about 45,000.

**GERMAN SOUTH POLAR EXPEDITION.** See POLAR RESEARCH.

**GERMAN SOUTHWEST AFRICA.** A German protectorate lying south of Angola. Area, about 318,000 square miles; estimated population, about 200,000 (Hottentots, Bushmen, Bantus, and Damaras). Europeans (1909), 11,791. Government schools, 11, with 377 pupils; mission-school pupils, about 3000. There is little agriculture, the chief industry being stock-raising. Livestock, 1909: 96,112 cattle, 300,733 sheep, 4472 angora and 237,551 other goats, 8271 horses, 4636 mules, 5189 asses, 2917 swine, 240 camels. The diamond fields, discovered in 1908 near Lüderitz Bay, continue to yield stones of good size and quality. The first year's production amounted to 561,000 carats, valued at 17,000,000 marks, of which 6,000,000 marks were paid in to the treasury. In 1908, 31,004 tons of copper ore were exported; gold has been found. Imports, including government stores, in 1908, 33,178,994 marks (Germany, 26,933,761); exports, 7,586,427 (Germany, 7,412,160). Exports of copper ore, 6,296,000 marks. Vessels entered (1909), 339, of 1,126,569 tons. Total railways open, 780 miles; under construction, 106. Post-offices, 62. Revenue and expenditure (1909-10), 31,030,000 marks (subvention, 17,125,000). Dr. Seitz was appointed governor in 1910, with headquarters at Windhoek. A revolt broke out among the Kaffirs employed on the railway at Wilhelmstal on October 4, but was suppressed by the aid of troops, 12 natives being killed and 6 wounded.

**GERMAN TARIFF.** See TARIFF and GERMAN.

**GERMANIC PHILOLOGY.** See PHILOLOGY.

**GERMANY.** An empire of Europe extending from France to Russia. Capital, Berlin.

**AREA AND POPULATION.** The area in square miles and the population by states, with density per square mile, are shown in the table below (census of December 1, 1905). *k*=kingdom, *g*=grand-duchy, *d*=duchy, *p*=principality, *f. t.*=free town, *r*=Reichsland.

States	Sq. mi.	Pop.
Prussia ( <i>k</i> )	134,616	37,293,324
Bavaria ( <i>k</i> )	29,292	6,524,372
Württemberg ( <i>k</i> )	7,534	2,302,179
Saxony ( <i>k</i> )	5,789	4,508,601
Baden ( <i>g</i> )	5,823	2,010,728
Mecklenburg-Schwerin ( <i>g</i> )	5,068	625,045
Hesse ( <i>g</i> )	2,966	1,209,175
Oldenburg ( <i>g</i> )	2,482	438,856
Brunswick ( <i>d</i> )	1,418	485,958
Saxe-Weimar ( <i>g</i> )	1,397	338,095
Mecklenburg-Strelitz ( <i>g</i> )	1,131	103,451
Saxe-Meiningen ( <i>d</i> )	953	268,916
Anhalt ( <i>d</i> )	888	338,029
Saxe-Coburg-Gotha ( <i>d</i> )	764	242,432
Saxe-Altenburg ( <i>d</i> )	511	206,508
Lippe ( <i>p</i> )	469	145,577
Schwarzburg-Rudolstadt ( <i>p</i> )	383	96,835
Waldeck ( <i>p</i> )	433	59,127
Schwarzburg-Sondershausen ( <i>p</i> )	333	85,152
Reuss Younger Line ( <i>p</i> )	319	144,584
Schaumburg-Lippe ( <i>p</i> )	181	44,992
Reuss Elder Line ( <i>p</i> )	122	70,603
Lübeck ( <i>f. t.</i> )	115	106,857
Hamburg ( <i>f. t.</i> )	160	874,878
Bremen ( <i>f. t.</i> )	99	263,440
Alsace-Lorraine ( <i>r</i> )	5,604	1,814,564
<b>Total</b>	<b>208,780</b>	<b>60,641,278</b>

According to the occupation-census of June 11, 1907, the total population was 61,720,259; census of December 1, 1910, 64,896,881 (subject to revision), showing an increase of about 7 per cent. since 1905, against nearly 8 per cent. from 1900 to 1905. The following table shows the number of persons directly engaged, the number indirectly engaged (including domestic servants), and the total in the given occupations (June 11, 1907):

Occupations	Direct	Indirect	Total
Manufacturing	10,292,976	13,111,400	23,404,376
Agriculture	9,732,472	7,610,463	17,242,935
Commerce, transportation, etc.	3,477,626	4,800,613	8,278,239
Mining	963,278	2,018,883	2,982,161
Professions	1,087,336	1,539,424	2,626,760
Various service exclusive household	471,695	321,058	792,748
Army and navy	651,194	129,172	780,366
Forestry, fishing, etc.	150,785	287,456	438,241
Without occupation	3,404,983	1,769,720	5,174,703
<b>Total</b>	<b>30,232,345</b>	<b>31,488,184</b>	<b>61,720,259</b>

The table below shows the number of marriages (*m*), births, including still-births (*b*), illegitimate births (*i*), deaths, including still-births (*d*), still-births (*s*), emigrants (*e*), and emigrants to the United States (*u*):

	1906	1907	1908	1909
<i>m</i>	498,990	503,964	500,620	.....
<i>b</i>	2,084,739	2,060,973	2,076,660	.....
<i>i</i>	177,060	178,178	184,112	.....
<i>d</i>	1,174,464	1,178,349	1,197,098	.....
<i>s</i>	62,362	61,040	61,608	.....
<i>e</i>	31,074	31,696	19,883	24,921
<i>u</i>	29,226	30,431	17,951	19,920

The larger cities, with population December 1, 1905, are: Berlin, 2,040,148; Hamburg, 802,793; Munich, 538,983; Leipzig, 537,733; Dresden, 516,996; Breslau, 470,904; Cologne, 428,722; Frankfurt-on-the-Main, 334,978; Düsseldorf, 305,163. Reported returns of the census of December 1, 1910, place the population of Berlin at 2,064,153 and of "Greater" Berlin at 3,712,554.

**EDUCATION.** Education is free and compul-

sory, and the number of illiterates is almost negligible. The school age is from six to fourteen years. Elementary schools (1906): Public, 60,584, with 166,597 teachers (29,384 female) and 9,737,262 pupils—expenditure, 522,801,000 marks; private, 614, with 42,094 pupils. Secondary schools (1908): Public, 1405, including 226 normal schools; private, 56. There are ten State-aided technical high schools (of collegiate rank) and a large number of institutions for various special or technical instruction. The German universities have a deserved reputation for excellence, and their growth in recent years has been notable. In 1871 the number of university students was about 13,000; at the end of 1910, including all admitted to lectures, it was about 60,000, while the total of matriculated students was 54,822 (including 2418 women). Number of students in the leading faculties: Philosophy, philology, and history, 15,525; medicine, 11,240; law, 10,890; mathematics and natural science, 7914; theology, Protestant 2535, Catholic 1760; administration, 2544. The University of Berlin had 9686 students; Munich, 6905; Leipzig, 4900; Bonn, 3846; Halle, 2646; Breslau, 2454; Freiburg, 2246; Göttingen, 2233; Strassburg, 2067; Münster, 2047; Heidelberg, 2008; Marburg, 1981; Tübingen, 1883; Jena, 1637; Kiel, 1439; Würzburg, 1425; Königsberg, 1380; Giessen, 1249; Erlangen, 1011; Greifswald, 948; Rostock, 816. The very rapid increase in the number of medical students (from about 6000 in 1908) has caused much comment in Germany, where the profession is overcrowded. Recent statistics show that over one-third of the practising physicians fail to earn \$1000 a year.

**AGRICULTURE.** In 1900, 48.6 per cent. of the total area was under cultivation, 16 per cent. was meadow and pasture, and 26 per cent. forest. In '907, 27.95 per cent. of the population were supported by agriculture, against 34.9 in 1895; corresponding figures for manufacturing are 37.92 and 35.52 respectively; for commerce and transportation, 13.41 and 11.52; for mining, 4.83 and 3.57. A report of the German Imperial Statistical Bureau gives the area and production of specified crops for two years in thousands of acres and thousands of bushels (w. indicates winter; s., spring):

	1000 acres		1000 bushels *	
	1909	1910	1909	1910
Wheat (w.)..	3,944	4,287	117,502	125,981
Wheat (s.)...	581	514	20,498	15,902
Rye (w.).....	14,848	14,997	440,688	408,318
Rye (s.).....	301	290	6,090	5,484
Oats .....	10,650	10,599	628,718	544,287
Barley .....	4,068	3,881	160,552	133,330
Potatoes .....	8,213	8,145	1,716,161	1,597,174
Hay .....	20,377	20,485	† 35,770	† 46,133
Hops .....	72	68	‡ 13,356	‡ 44,998

\* Bushel: 60 pounds wheat, 56 rye, 48 barley, 32 oats.  
† Thousands of tons (2000 pounds). ‡ Thousand pounds.

In 1908-9, 1,077,832 acres were planted to sugar beets; in that year and in 1909-10, the beets worked up amounted to 11,809,182 and 12,904,795 metric tons respectively; raw beet sugar produced, 1,980,387 and 1,940,911; molasses, 275,395 and 271,104. Wine production in 1908 amounted to 3,135,958 hectolitres; in 1909, 2,020,620. Tobacco production in 1906, 32,075,000 kilos; in 1907, 28,839,814; in 1908, 34,419,000. Livestock, Dec. 2, 1907: 4,345,043

horses, 10,991 mules and asses, 20,630,544 cattle, 7,703,710 sheep, 22,146,532 swine, 3,533,970 goats. The number of sheep is declining; in 1871 there were about 25,000,000 in the empire, and in 1910 the estimated number was about 7,000,000. Other livestock show a gradual increase.

**MINERALS AND METALS.** Figures for mineral and metal production include those of the Grand Duchy of Luxemburg. The total value of minerals raised in 1906 was 1,637,000,000 marks; in 1907, 1,845,000,000; in 1908, 1,970,000,000. The following revised figures show the amount in metric tons of the principal minerals raised:

Minerals	1906	1907	1908
Coal .....	137,117,926	142,185,691	147,671,149
Lignite .....	56,419,600	62,546,671	67,615,200
Iron ore .....	26,734,570	27,697,123	24,278,151
Zinc ore .....	704,590	698,425	706,441
Lead ore .....	140,914	147,272	156,861
Copper ore .....	768,523	771,227	727,384
Rock salt .....	1,235,041	1,285,138	1,331,984
Potash salts ..	5,541,667	5,749,368	6,090,439
Other products	483,262	534,298	552,398

The more important reduction products are reported for 1907 and 1908, in metric tons, as follows: Pig iron, 12,875,159 and 11,805,321 respectively; zinc, 208,195 and 216,490; lead, 142,271 and 164,079; copper, 31,946 and 30,001; tin, 5338 and 6375; silver, 387 and 408; sulphuric acid, 1,402,398 and 1,385,740.

**MANUFACTURES.** In recent years German manufacturing industries have shown an enormous development, urban populations have greatly increased, and the condition of agriculture has become unsatisfactory. The cost of living has risen along with the increasing population, the movement from country to city, and the development of capital combination, so that a most narrow margin exists between the income of the factory worker and his actual necessities. And to the burdens of the people due to economic causes is the increasing weight of taxation due largely to the government's aggressive policy in military and naval affairs. Meanwhile, however, the empire has taken a place in the first rank of manufacture and is conspicuous in its output of textiles, iron and steel goods, glass and earthenware, wooden wares, clocks, leather goods, beet sugar, alcohol, and, in fact, almost every kind of factory product. Comprehensive statistics for 1909 and 1910 are not available.

**SHIPPING.** The following table shows the number of German and foreign vessels entered and cleared, with registered tonnage in 1908:

	Entered		Cleared	
	Vessels	1000 tons	Vessels	1000 tons
German ..	83,282	15,771	82,983	15,410
Foreign ..	24,412	11,662	24,457	11,681
Total ..	107,694	27,433	107,440	27,091
	Ent. with cargo		Cl. with cargo	
German ..	74,417	14,570	61,680	11,902
Foreign ..	21,207	10,848	15,224	5,727
Total ..	95,822	25,418	76,904	17,629
	Steamers ent.		Steamers cl.	
German ..	54,414	13,671	53,966	13,414
Foreign ..	15,362	10,783	15,317	10,828
Total ..	67,776	24,454	69,283	24,242

The merchant marine, January 1, 1909, in-

cluded 4638 vessels, of 2,825,404 tons net and 72,450 men; January 1, 1910, 4658 vessels, of 2,859,307 tons and 73,516 men. On the latter date steamers numbered 1950, of 2,349,557 tons and 59,421 men; of the total vessels, those registered at North Sea ports numbered 3719, of 2,556,249 tons and 65,095 men, and at Baltic ports, 939, of 303,058 tons and 8421 men. These figures do not include vessels of a gross capacity of less than 50 cubic metres (that is, 22 metric tons for sail and 15 for steam).

**COMMERCE.** The special trade (imports for consumption and exports of domestic products) is shown in the following table, in thousands of marks:

	1907	1908	1909
Imports:			
Merchandise ....	8,746,678	7,664,021	8,520,125
Precious metals..	256,645	413,072	340,285
Total .....	9,003,323	8,077,093	8,860,410
Exports:			
Merchandise ....	6,850,890	6,398,527	6,592,242
Precious metals..	249,693	82,926	266,451
Total .....	7,100,583	6,481,453	6,858,693

Imports and exports of merchandise, in millions of marks, by great classes—food substances (a), live animals (b), raw materials (c), manufactures (d), totals (e):

	Imports			Exports		
	1907	1908	1909	1907	1908	1909
a	2,217.9	2,042.6	2,324.3	639.9	679.8	662.3
b	226.8	224.6	231.1	11.8	9.5	11.1
c	4,910.4	4,154.2	4,688.9	1,655.4	1,577.2	1,701.9
d	1,391.6	1,242.6	1,275.8	4,638.1	4,182.1	4,216.9
e	8,746.7	7,664.0	8,520.1	6,845.2	6,398.6	6,592.2

The principal articles of merchandise entered for consumption in 1909 were valued, in millions of marks, as follows (figures in parenthesis are for 1908): Cereals, 962 (784.1); cotton, 568 (502.5); hides and skins, 492.5 (392.8); wool, 466.2 (390.5); chemicals and drugs, 287.7 (264.1); coal, 260.2 (271.8); timber, lumber, etc., 252.6 (244.6); copper, 194.8 (198); silk, 193.9 (157.4); coffee, 188.2 (163.6); fruits, 177 (129.8); eggs, 156.6 (137); rubber and gutta-percha, 153 (98.7); iron, 135.9 (142.1); leaf tobacco, 132.1 (125.5); wheaten products, 127.5 (118.5); woolen yarn, 119.7 (97.5); cocoanuts and copra, 116.6 (76.3); animal fats, 111.4 (99); linseed, 105.7 (101.2); oil-cake, 98.3 (85.9); butter, 96.5 (72.7); fish, 95.5 (85.9); cotton yarn, 89.5 (87.8); flax and hemp, 78.1 (76); silk goods, 69.5 (64.5); petroleum, 65.7 (75.3); iron manufactures, 64.6 (65.2); machinery, 63.5 (68.5); furs, etc., 63.3; rice, 59.2; cotton goods, 53.5; jute, 51.6; wine, 47.3.

Values, in millions of marks, of 1909 domestic exports (1908 figures in parenthesis); iron manufactures, excepting machinery, 694.9 (704.3); coal, 413 (398.9); machinery, 384.4 (415.9); chemicals and drugs, 380.9 (331.7); cotton goods, 321.7 (350.2); cereals, 255.9 (224.2); woolen goods, 255.5 (258.7); dyes and colors, 231.2 (208.7); sugar, 207.3 (195.7); paper, 200.3 (184.3); electrical apparatus, etc., 180.9 (177.3); leather, 172.4 (165.1); silk goods, 164.1 (167); furs, etc., 142.1 (114.1); hides and skins, 136.3 (111.2); ships, 117.6 (97.8); copper manufactures, 114.6 (102.5); wool, 111.1 (94.8); woolen yarn, 109.7 (66.1);

glass and glassware, 90 (104.1); apparel, 87.7; pottery, 76.1 (174.8); toys, 76.1 (66.8); leather manufactures, 74.3 (77.4); gold and silver manufactures, 70.7 (107); cotton, 70.3 (56.5); books, maps, etc., 61.8 (61.8); musical instruments, 56.3 (56.6).

In 1908 and 1909 the special commerce (exclusive of precious metals) with the principal countries of origin and destination was valued, in millions of marks, as follows:

	Imports		Exports	
	1908	1909	1908	1909
United States .....	1,282.6	1,212.1	507.5	604.8
Russia .....	920.8	1,326.2	505.5	497.4
Austria-Hungary ...	751.4	753.7	736.8	767.3
Great Britain .....	696.9	720.7	997.4	1,015.0
Argentina .....	446.0	437.7	147.0	175.4
France .....	420.0	484.7	437.9	454.8
British India .....	306.9	317.0	95.4	78.8
Belgium .....	262.1	289.5	322.8	348.7
Italy .....	235.9	287.7	311.3	288.9
Netherlands .....	230.8	253.4	453.7	453.5
Brazil .....	198.6	234.3	84.5	91.8
British Australasia ..	185.9	233.1	58.0	58.4
Dutch East Indies...	173.2	184.9	40.7	39.5
Switzerland .....	177.2	162.4	401.1	413.2
Chile .....	133.6	143.5	52.4	59.6
Sweden .....	145.1	141.7	174.1	156.2
Denmark .....	120.9	135.3	200.6	195.9
Spain .....	115.0	123.7	65.9	69.1
China .....	70.7	65.2	50.7	56.8
Rumania .....	73.7	64.5	70.8	57.2
Egypt .....	63.1	95.7	30.9	32.2
British West Africa...	58.9	87.4	11.7	11.7
British South Africa...	43.8	61.5	32.0	38.1
W. Indies and Guiana	32.6	32.0	27.1	28.0
Turkey in Asia....	33.0	35.2	24.7	24.1
Central America ....	31.3	35.3	10.0	9.6
Norway .....	29.1	36.8	97.0	104.5
Uruguay .....	26.1	34.0	23.7	23.2
Mexico .....	19.9	21.5	36.9	38.1
Japan .....	19.0	29.5	94.6	78.0
Greece .....	18.5	18.2	12.0	11.3
German colonies ....	22.8	29.3	35.5	40.9

**COMMUNICATIONS.** Most of the German railways are owned or operated by the states (in Alsace-Lorraine by the Imperial government). The lines in operation under government ownership or management and the total private lines were as follows on August 1, 1909 (normal gauge, narrow gauge, and totals, in kilometres—one kilometre = .62137 mile):

	Norm. g.	Nar. g.	Total
Owned or operated by			
Prussia and Hesse.....	37,044	242	37,286
Bavaria .....	7,653	109	7,762
Saxony .....	2,882	443	3,325
Württemberg .....	1,922	101	2,023
Baden .....	1,741	....	1,741
Mecklenburg .....	1,100	....	1,100
Oldenburg .....	665	....	665
Prussia (Royal Military Railway) .....	71	....	71
Imperial government in Alsace-Lorraine.....	1,997	78	2,075
Government lines .....	55,075	973	56,048
Private lines .....	3,462	1,114	4,576
Total kilometres.....	58,537	2,087	60,624
Government, miles .....	34,222	605	34,827
Private, miles .....	2,151	692	2,843
Total miles .....	36,373	1,297	37,670

In 1904 Germany had over 8500 miles of inland navigable waterways. The telegraph is owned and operated by the state; in 1909, 43,680 offices, with 217,958 kilometres of line and 638,465 of wire. Post-offices (1909), 40,769.

**FINANCE.** The unit of value is the mark,

worth 23.8 cents. The budget for the year ending Mar. 31, 1911 (as voted Mar. 21 and May 22, 1910) balanced at 2,853,781,095 marks (including extraordinary revenue and expenditure balancing at 190,730,269 marks). The larger items of estimated ordinary revenue were: Customs, excise, stamps, etc., 1,441,620,000 marks (customs 631,900,000, spirits excise 180,000,000, sugar 147,000,000); posts and telegraphs, 693,226,325; railways, 122,319,000; matricular contributions of the several states, 228,512,000 (Prussia 141,831,687). Of the extraordinary receipts, loans accounted for 148,149,162 marks. As voted, the larger expenditures, including ordinary (permanent and transitory) and extraordinary, were: War, 806,740,757 (exclusive of 1,239,941 marks for the High Court of Military Justice); posts and telegraphs, 665,275,077; navy, 442,176,342; Imperial treasury, 252,584,473; Imperial debts, 224,976,223; pensions, 118,352,641; railways, 113,709,981; interior, 107,373,493.

At the end of 1908, the interest-bearing debt of the empire was 4,253,500,000 marks, having increased by 250,000,000 marks during the year. Non-interest-bearing debt: Treasury bonds, 593,000,000 marks, having increased by 119,000,000 during the year; paper money, 120,000,000. Total debt, Dec. 31, 1908, 4,968,500,000 marks, against 4,597,500,000 Dec. 31, 1907. The invested fund for invalids amounted to 91,010,119 marks Mar. 31, 1910. There is a war treasure fund of 120,000,000 marks preserved in gold at Spandau. The Imperial coinage (less amounts withdrawn) from 1871 to Mar. 31, 1909, amounted to 5,530,188,200 marks (gold 4,465,324,400, silver 955,263,500).

**ARMY.** Military service is compulsory in Germany and every citizen called upon to bear arms at 18 years of age is liable to serve for 7 years in the regular army, 2 years of which for the infantry and 5 years for the horse artillery and cavalry are spent in the ranks with the colors and the remainder of the period with the army reserve. Then follows 5 years (3 years for cavalry and horse artillery) with the first levy of the Landwehr, which involves two trainings of 14 days each for the dismounted branches only. After this comes service with the second levy or ban until the soldier's 40th year without training periods and finally service with the Landsturm or Home Defence Army, second ban, until the 45th year is completed. The surplus of recruits over those required for the regular army pass into the Ersatz Reserve, where they receive a limited amount of training before passing to the Landsturm, or they may be enrolled at once in the first ban of the Landsturm, in which are all able bodied men from 17 to 39 who have not served otherwise. In addition there are One Year Volunteers who pay all their expenses and after training become eligible to act as officers in the Reserve and Landwehr. In 1910 there were about 12,000 enrolled. In 1910 the German Army was organized in 23 corps in which were included a corps of guards and 3 Bavarian Corps. There were 630 battalions of infantry and chasseurs, 74 machine gun sections serving with the infantry (the 13th company of a regiment) and 16 with the cavalry, 498 squadrons of cavalry, 574 field batteries, 165 fortress batteries, 165 companies of foot artillery, 153 companies of engineers, 68 squadrons of train and various railway, balloon, and other technical troops. This army on October 1, 1910,

amounted to 25,722 officers, 85,259 non-commissioned officers, and 504,446 men, and 7082 medical, veterinary, pay and other officers and men. There were 114,162 horses.

To form a Field Army for war service the regular establishment would be increased by the reserve divisions, one for each of the 23 army corps, 11 cavalry divisions and other troops so that there would be a grand total of 962 battalions of infantry, 485 squadrons of cavalry, 828 batteries of artillery, 16 machine gun sections, and 95 companies of pioneers, giving a total strength of about 984,000 infantry, 72,000 cavalry, 4968 guns, and 96 machine guns, or a total of about 1,165,000. When to the Field Army and its reserve formation are added the Landwehr amounting to 1,800,000, and the 30,000 of the Ersatz Reserve, was estimated that the total war strength of the German Empire could be stated at about 4,330,000 men.

The five-year period through which the German active army had been annually increased by the Army Law of April 1, 1905, expired on March 31, 1910. A new quinquennium was to begin in 1911 and it was believed that there would be continued expansion of the army. The budget of 1910 showed a total of 1,010,589,848 francs for military purposes or a decrease of 59,779,138 francs from the figures for 1909. This was divided as follows: Ordinary budget: recurrent expenses, 883,507,058 francs, non-recurrent expenses, 97,408,447 francs: extraordinary budget, 28,233,775 francs; military justice, 1,550,468 francs. Two new cavalry regiments were provided for and also two staffs of cavalry brigades. Other provisions made were for increasing the available number of horses for the field artillery and the increase of the number of officers, especially those charged with the command of reserve organizations upon mobilization. A new veterinary corps was also created.

**NAVY.** The number and displacement of warships, built and building, of 1000 or more tons, and of torpedo craft of more than 50 tons, were as follows in 1910: Battleships of 10,000 tons and over (counting 2 of 9874 tons each), 35, aggregating about 534,000 tons; armored cruisers, 13, of about 182,000 tons; coast-defense vessels, 6, of 24,308 tons; cruisers 6000 to 3000 tons, 29, of 124,030 tons; cruisers 3000 to 1000 tons, 16, of 36,077 tons; torpedo-boat destroyers, 109, of 57,262 tons; torpedo boats, 27, of 4719 tons; submarines, 20, of 7680 tons; total, 255 vessels, of about 970,000 tons. These figures do not include, besides the small craft as noted above, vessels over twenty years old (unless reconstructed and rearmed since 1900), those not actually begun although authorized, or transports, colliers, converted merchant vessels, etc. In 1910, the battleships included 2 second-class (completed in 1893), of 9874 tons each; 5 second-class (completed between 1898 and 1901), of 10,974 tons each; 5 first-class (completed in 1902 and 1903), of 11,643 tons each; 5 first-class (completed between 1904 and 1906), of 12,997 tons each; and the following first-class: *Deutschland* (1906), 13,200 tons; *Hannover* (1907) and *Pommern* (1907), 13,200 tons each; *Schleswig-Holstein* (1908) and *Schlesien* (1908), 13,200 tons each; *Nassau* and *Westfalen* (each completed 1909 and joined the fleet May 3, 1910), 18,200 tons each; *Posen* and *Rheinland* (both joined the fleet Sept. 20, 1910),

18,200 tons each. The last four vessels have each a main armament of twelve 11-inch and twelve 5.9-inch guns and a speed of 20 knots. Armored cruisers in 1910: One (1900), 10,700 tons; one (1902), 8868 tons; 2 (1903 and 1904), 9000 tons each; 2 (1905), 9500 tons each; 2 (1907), *Gneisenau* and *Scharnhorst*, each 11,600 tons, with a main armament of eight 8.2-inch and six 5.9-inch guns and a speed of 22.5 knots; one (1909), *Blücher*, 16,000 tons, twelve 8.2-inch and sixteen 6-inch guns, and 23 knots speed; one (1910), *Von der Tann*, 19,300 tons, eight 11-inch and ten 6-inch guns, and 26 knots speed. In 1910 there were building nine 22,000-ton first-class battleships, to have a speed of twenty knots and probably twelve 12-inch guns each. These battleships are known as *Ostfriesland* (*Ersatz Oldenburg*), *Helgoland* (*Ersatz Siegfried*), *Thuringen* (*Ersatz Beowulf*), *Oldenburg* (*Ersatz Frithjof*), *Ersatz Hildebrand*, *Ersatz Heindall*, *Ersatz Ägir*, *Ersatz Hagen*, and *Ersatz Odin*; the first three were launched in 1909 and the fourth June 30, 1910. Four armored cruisers were under construction in 1910; of these, the *Von der Tann* was launched April 7; the latter and also "H" and "I" are of 22,600 tons displacement, with eight 12-inch and twelve 6-inch guns and a speed of 26 knots. Three small protected cruisers, 8 submarines, and 24 destroyers were completed in 1910; but of the latter 4 were sold in February to the Turkish government. Also in 1910 several small cruisers and torpedo craft were building but not completed. The personnel of the navy in 1910-11 is over 57,000 officers and men. German naval expenditures, which show a continuous annual increase, nearly trebled from 1900-1 to 1909-10; for the latter year the total voted was 442,176,342 marks (\$105,237,969). See NAVAL PROGRESS.

**GOVERNMENT.** The executive authority is vested in the King of Prussia under the title of German Emperor. The Emperor in 1910 was William II; he was born January 27, 1859, married Augusta Victoria, Princess of Schleswig-Holstein, February 27, 1881, and succeeded to the throne June 15, 1888. The heir-apparent is Prince Frederick William, who was born May 6, 1882, and married Cecilie, Duchess of Mecklenburg, June 6, 1905. The Imperial ministers do not form a single body (cabinet), but manage their departments independently of one another; they act under the general supervision of the Imperial Chancellor, who is appointed by the Emperor without reference to the political majority of the legislative body and is directly responsible to him. The legislature consists of an upper house, or Bundesrath, presided over by the Chancellor, and a lower house, or Reichstag. Members of the former (58) are chosen by the governments of the several states, and those of the latter (397) are elected by popular vote. The Imperial Chancellor in 1910 was Theobald von Bethmann-Hollweg (from July, 1909). The Imperial ministers, or secretaries of state, were: Foreign Affairs, Alfred von Kiderlen-Waechter; Interior, Klemens Delbrück; Navy, Admiral Alfred von Tirpitz; Justice, Hermann Lisao; Treasury, Adolf Wermuth; Posts and Telegraphs, Reinhold Kraetke; Colonies, Friedrich von Lindequist. The several federated states have their own governments. Alsace-Lorraine has been governed directly by the Imperial authorities, but in December, 1910, a con-

stitution for the Reichsland, providing a certain measure of representative government, was drafted by the Bundesrath (see below, paragraphs on History). The several state executives in 1910 were: ALSACE-LORRRAINE, Statthalter Count von Wedel (appointed October 18, 1907); ANHALT, Duke Friedrich (succeeded January 24, 1904); BADEN, Grand-Duke Friedrich II (September 28, 1907); BAVARIA, Prince Luitpold, appointed regent June, 1886, for King Otto Wilhelm Luitpold (June, 1886); BREMEN, Burgomasters Barkhausen and Pauli; BRUNSWICK, Regent Johann Albrecht, Duke of Mecklenburg (elected May 28, 1907); HAMBURG, Burgomaster M. Predöhl; HESSE, Grand-Duke Ernst Ludwig (March 13, 1892); LIPPE, Prince Leopold IV (October 25, 1905); LÜBECK, Burgomaster J. G. Eschenburg; MECKLENBURG-SCHWERIN, Grand-Duke Friedrich Franz IV (April 10, 1897); MECKLENBURG-STRELITZ, Grand-Duke Adolf Friedrich (May 30, 1904); OLDENBURG, Grand-Duke Friedrich August (June 13, 1900); PRUSSIA, King Wilhelm II (June 15, 1888); REUSS ELDER LINE, Prince Heinrich XXVII, hereditary prince of Reuss Younger Line, regent (from October, 1908) for Prince Heinrich XXIV. (April 19, 1902); REUSS YOUNGER LINE, Prince Heinrich XXVII, hereditary prince, regent (since 1892) for Prince Heinrich XIV (July 11, 1867); SAXE-ALTENBURG, Duke Ernst (February 7, 1908); SAXE-COBURG-GOTHA, Duke Charles Edward (July 30, 1900); SAXE-MEININGEN, Duke George II (September 20, 1866); SAXE-WEIMAR, Grand-Duke Wilhelm Ernst (January 5, 1901); SAXONY, King Friedrich August III (October 15, 1904); SCHAUMBURG-LIPPE, Prince Georg (May 8, 1893); SCHWARZBURG-RUDOLSTADT, Prince Günther (January 19, 1890); SCHWARZBURG-SONDERSHAUSEN, Prince Günther of Schwarzburg-Rudolstadt since death of Prince Karl Günther (March 28, 1909); WALDECK, Prince Friedrich (May 12, 1893); WÜRTTEMBERG, King Wilhelm II (October 6, 1891).

## HISTORY

**PRUSSIAN ELECTORAL REFORM.** Prince von Bülow, while still hoping to maintain the *bloc*, had promised that the government would bring in a Prussian suffrage reform measure. This concession to the Liberal interests became the unwelcome duty of the new Chancellor, von Bethmann-Hollweg, and on February 4, 1910, an electoral reform project prepared wholly under bureaucratic direction was presented to the Landtag. It made no concessions whatever to the Liberal demands, and in order to secure even a basis for discussion the government was obliged to consent to changes which were offensive to its own partisans. It retained the most objectionable features of the existing law, namely, the three-class system and public voting. It substituted, however, direct for indirect voting and it admitted officials and educated persons into the first and second classes without regard to the amount of taxes paid by them. In his speech on behalf of the measure the Chancellor declared definitely that the government had set its face against a suffrage based on democratic principles. The Conservative interests were of course opposed to any measure of real reform. The three-class system of voting was wholly satisfactory to them and they were far from agreeing with Bismarck's often-quoted

opinion that the Prussian electoral system was the worst of all. In order to keep the promise to which von Bülow had committed the government they were willing that something should be done, but wished to reduce it to a minimum. Even a slight measure of reform would, in their opinion, form the opening wedge for radical changes. When the measure came before the Upper House an amendment was offered by Baron von Schorlemer, with the approval of the government, providing for the three-class division of primary electors according to entire districts instead of small electoral subdivisions as heretofore. This was offered as the price of National Liberal support. The Clerical party had already declared that it would not accept a project which met the wishes of the National Liberals, and it was evident that such an amendment would cause the defeat of the measure. The purpose of the government in submitting it was not clear and there was a general suspicion that it did so with the desire to court failure. It passed the Upper House on April 29, but during the discussion in the Lower House the measure was cut to pieces to such a degree that it lost all meaning and consistency and the government withdrew the project (May 27). While the unsatisfactory franchise measure was pending, hostile demonstrations organized by Socialists occurred throughout Prussia and elsewhere, and there were more or less serious disturbances at Berlin, Frankfurt, Halle, Duisburg, Königsberg and Kiel, accompanied by some bloodshed. It was charged, on the one hand, that the Social Democrats were causing the riots, and on the other, that the police were needlessly aggressive. The Socialists arranged a great franchise demonstration in Berlin for Sunday, March 6, and though forbidden by the police to march they succeeded in turning out in very large numbers. The police seem to have been needlessly severe on this occasion, charging the crowd and wounding many persons. Many arrests were made. On the anniversary of the revolution of 1848 further riots occurred.

**MINISTERIAL CHANGES AND PARTY POLITICS.** In the summer, several unexpected and important changes were made in the Ministry. Herr Dernburg, Secretary of State for the Colonies, was succeeded by von Lindequist, the Under-Secretary, and Baron von Schoen, Foreign Minister, by von Kiderlen-Waechter, the German Minister at Bucharest; in Prussia Von Moltke, Minister of the Interior, by von Dallwitz, President of Upper Silesia; von Arnim, Minister of Agriculture, by von Schorlemer, President of the Rhine Province; and Baron von Rheinbaben, Finance Minister, by Herr Lentze, Burgo-master of Magdeburg. These changes were regarded in political circles as indicating the desire of the new Chancellor to solidify the Right against the Democratic elements. Von Moltke had been a defender of the reform measure, whereas his successor, von Dallwitz, represented the extreme Conservative element. The former's dismissal, as well as that of von Arnim, was quite unexpected. Herr Dernburg's resignation arose from his intimate association with the former policy of the *bloc* under von Bülow and his unwillingness to adapt himself to the new political conditions. It was hastened by the attacks upon him by the Centre in connection with the bill for paying the cost of suppressing the risings in German Southwest Africa. His

successor, being versed in the traditions of his office, was thought likely to carry on his policy. Herr Dernburg, who had held office since 1906, had striven to introduce a new commercial spirit into the colonial administration and had displayed marked ability. His record had been of great aid to the government in the elections of 1907. The dismissal of Baron von Schoen was attributed in part to his desire to be relieved of the burdens of his office and especially to obtain the post of Ambassador at Paris, but it was hastened by the attacks upon him of the "jingo" element, especially the Pan-Germans, who found him too pacific in his Moroccan policy in general, and were opposed to his attitude to the Mannesmann affair in particular. He succeeded Prince Radolin at Paris. The most significant of these cabinet changes was the removal of von Rheinbaben, who had been for ten years an active member of the Ministry. He enjoyed the confidence of the Agrarian element and was regarded in general as the rival of von Bethmann-Hollweg. His dismissal was accordingly taken as marking the triumph of the latter. Von Rheinbaben's successor, Lentze, was in full sympathy with him, and in fact had a short time before defended the Prussian government's financial policy against violent criticism from the Director of the Deutsche Bank; but politically, Lentze represented the National Liberals, or rather their Right Wing, so his appointment was regarded as a bid for National Liberal support. Baron von Schorlemer's appointment also was regarded as an overture to the National Liberals. He had been the author of the suffrage amendment above mentioned, which the National Liberals had required as a condition precedent to their support of any government reform project, and he had also, as President of the Rhine Province, sustained friendly relations with that party which is dominant in the great industrial centres of the province. On the other hand, he had in some degree the confidence of the conservative element of the Centre.

Thus the appointments of the Chancellor were taken as a sign of a new alignment by which a *bloc* might be formed, consisting of Conservatives, Independent Conservatives, the Centre, exclusive of its more democratic elements, and the Right of the National Liberal party. At the same time a similar tendency toward concentration appeared among the groups of the Left. For some time past thoughtful members of the Radical party had come to the conclusion that there was but one means of putting an end to the reactionary tendency in Germany and Prussia, and that was to form a *bloc* out of the parties of the Left, regardless of their differences of opinion. The bitter rivalry between the Liberals and Socialists offered, of course, a serious obstacle to any such scheme. But efforts to bring about a conciliation between the democratic members of the Liberal party and the Revisionist Wing of the Socialist party had been in progress for some time. This policy had achieved important practical results in the Baden Landtag, where the Clerical-Conservative coalition became so menacing that a union between the Liberals and Socialists was actually formed. In the last election this fusion of the parties of the Left prevented the triumph of the Clerical-Conservative alliances, and although many supposed that after the elections the parties of the Left would soon fall apart, the co-

alition continued and controlled the action of Parliament in some important particulars. Its chief success was the voting of a new school law, which represented a democratic advance. The question of voting the budget involved a point of great importance in Socialist policy. The last Socialist Congress at Nuremberg had declared vigorously against voting the budget and had refused to recognize that the Liberal party was in any way to be distinguished from the other political parties which, being opposed to Socialism, were regarded as altogether reactionary. The Baden Socialists, as a result of the political situation, voted the budget in spite of this decision of the Nuremberg Congress. The result was a serious division of opinion among the German Socialists. The difficult question was left for the next Congress, which was to meet in Magdeburg in September. The Socialist party, since the failure of the financial reform measure of 1909, had made important gains in the complementary elections to the Reichstag. Six new seats were won by them and the popular vote showed a remarkable increase. Discontent with the government's policy drove many into the ranks of the Social Democrats. See SOCIALISM, paragraph on *Germany*.

**PARLIAMENT.** The animosities between the various political groups, and the uncertainty as to the government's intentions and as to the political situation generally, blocked the work of legislation not only in the Reichstag, but in the Prussian Landtag. Several important measures were before the Reichstag, including the bill concerning penal procedure, the increment tax bill and the potash bill. Of these the only one that was passed before the adjournment of Parliament in May for the summer recess was the potash measure. This created a trust of all the potash mines in the country. For some time past, the potash industry had been in serious difficulties, owing to the setting up of new factories and consequent overproduction. The new law provided that potash should be sold to foreigners only through the actual proprietors, that is to say, those who mined potash on their own account, and it limited the amount that should be sold each year, the Federal Council to control the distribution of the output of the respective establishments until December 31, 1910. The law also fixed the minimum price for the domestic market. The incident illustrated the great divergence between the German government's policy toward trusts, and that pursued by other countries, especially the United States. (See FERTILIZERS). The increment tax bill was in effect a supplement to the measure of fiscal reform passed in 1909. It was adopted by the Bundesrath in April and presented to the Reichstag. The principle upon which it readjusted the rival claims between the local and Imperial authorities was that the taxation be divided into three parts, 50 per cent. for the Imperial treasury, 40 per cent. for the local authorities and 10 per cent. for the cost of collection.

**NAVAL AFFAIRS.** When the naval budget was presented it was found to show an increase of \$7,000,000. In the course of the debate on the estimate in March a Socialist speaker pronounced the navy a cause of alarm to Great Britain and a menace to the peace. The Chancellor replied that the navy building programme was in no wise aggressive, but due to the need

of effective sea power for the protection of the coasts; that there was nothing secret about it and that the relations with Great Britain were open to everybody. Germany was aiming merely to secure her further development and there was no reason why her friendly relations with any other Power should be disturbed. Work on the new naval base at Brunsbüttel at the western terminus of the Kaiser Wilhelm Canal began early in the year, plans for it having been completed in February. It was believed that the new base would be of equal importance to that of Kiel. The plan was said to include a considerable enlargement of the canal. German naval progress was watched uneasily in Great Britain, and every accession was reported in the British press and commented upon. By April, all of the seventeen large vessels concerning which there had been so much discussion had been begun. The eighth German *Dreadnought* was launched at Dantzig, in July. On November 28, soon after the meeting of the new Parliament, the naval estimates were presented to the Reichstag. They showed an unprecedented amount.

**CRITICISM OF THE VATICAN.** Notes passed between Germany and the Vatican on account of a passage in the new Encyclical of Pius X. contrasting the work of Saint Carlo Borromeo with that of the Protestant reformers. The latter were characterized as seducers, who exhausted the strength of Europe in war and strife, and prepared the way for the decadence of modern times, and under the name of evangelical freedom caused a corruption of morals and the perversion of discipline. This criticism of the Reformation caused much excitement in evangelical circles in Prussia and the government protested in a note, pointing to the fact that the criticism did not deal with dogma alone, but related to morals as well. The reply of the Curia was to the effect that the purpose of the Encyclical had not been rightly understood, and that the Pope regretted the excitement that followed its publication. It went on to declare the genuine respect and sympathy of the Vatican for the German nation.

**THE MOABIT AFFAIR.** A comparatively slight disturbance in a coal yard in the Moabit district of Berlin led to street riots, which were magnified in certain quarters and minimized in others according to the political opinions of those interested. They became the subject of a discussion, in the closing months of the year, which seemed disproportionate to the importance of the affair itself. A firm of coal dealers in the Moabit district, whose workmen had gone out on strike, employed a number of strike-breakers. This angered the strikers and their sympathizers and it was necessary for the police to protect the new employees. On the night of September 26, crowds gathered, threw stones and caused some damage. The police tried to protect the property, but were attacked by the rowdy element and some forty of them were injured. There were further disturbances on the night of September 27, the mob including, besides the ordinary rowdies, many women and children. The Socialist papers contended that the strikers themselves had not taken any part in the outbreak. Many windows and street lamps were broken, and there were some further collisions with the police. Late on the night of September 28 four correspondents of British

and American newspapers were attacked in the street by the police and later lodged a complaint against them. Some 273 persons were said to have been injured in the riots on that evening. There were no further disturbances and the police were withdrawn on September 30. There was much comment on the incident in the German press, which seemed nonplussed by the sudden outbreak of disorder in the strictly regulated, well-disciplined city of Berlin. The American and British governments protested against the maltreatment of the newspaper correspondents and the Chancellor expressed regret, declaring that the incident was under investigation by the Minister of the Interior. Many arrests were made and the trial of the accused took place in December. Critics of the government blamed it for the severity of the sentences which it imposed on some of the alleged rioters, and in general for making too much of the affair.

**CRITICISM OF THE KAISER.** In the summer of 1910 the Kaiser made a speech at Königsberg in which, after reminding his hearers that his grandfather believed himself the chosen instrument of Heaven, and in possession of the crown by God's grace alone, he concluded with the following words, which gave the impression that he himself was of the same opinion: "Considering myself as the instrument of the Master, regardless of passing views and opinions, I go my way, which is solely devoted to the prosperity and peaceful development of the Fatherland." These words were immediately seized upon by the press as proof of the intention to govern without regard to public opinion, and were widely and sharply criticised. After the reassembling of the Reichstag in the last week of November, the Social Democrats, through their leader, Herr Ledebour, demanded an explanation of the Kaiser's speech, which was declared to be in violation of the promise that he had made after his indiscreet interview of November, 1908. Herr Ledebour accused the Kaiser of distorting history in his picture of the Hohenzollerns as ruling by divine right. Far from gaining the Prussian throne by the grace of God alone, the Elector of Brandenburg had, he declared, obtained it "from the Holy Roman Empire by begging and whining and all manner of intrigue at the court of Vienna." "The Kaiser," the speaker said, "should not attempt to rule against the opinion of the people; if he does, his position becomes untenable." He asked the Chancellor whether this new speech of the Kaiser's was consistent with his promise to observe all proper reserve in public discourse after the indiscretion of 1908. The Chancellor replied that the Socialist interpellation was plainly inspired by "passionate hostility to the constitution." The Socialists, as a party, were Republicans, and although this fact had long been known, it was now, as a result of Herr Ledebour's speech, more openly and emphatically shown than ever before. Popular sovereignty was not a principle of the Prussian state. The Königsberg speech in no wise violated His Majesty's promise of 1908, for it was clearly the Kaiser's right to use the expression "by the grace of God." "The Kings in their relation to the people are Kings in their own right. It must not be wondered at that in our day, when democratic tendency appears to treat the King as the official of the people, the King of Prussia strongly emphasized his consciousness that he is not subject to popular sovereignty."

**THE NEW SESSION.** The Reichstag reopened after the summer and autumn vacation, with unfavorable prospects for the government. At the time of adjournment, six months before, there had been only 43 Social Democrats in that body; now there were 52. The Chancellor's course in the matter of the Prussian franchise was regarded as among the chief causes of popular hostility. There was also much discontent with the high prices of meat, which gave rise to a general demand for throwing open the country to the importation of foreign meat. One of the first acts of the Ministry after the opening of the session was to refuse this demand, using the often-repeated arguments that German cattle must not be exposed to the danger of infection from the importation of foreign cattle, or the public health menaced by the sale of American meat in the German market. There were no very important measures promised, the chief business of the House being to determine the army's strength for the next five years.

**COMMERCIAL RELATIONS WITH THE UNITED STATES.** Negotiations with Germany were begun by the United States government after the passage of the Aldrich-Payne tariff bill in August, 1909, for a new commercial agreement to take the place of the arrangement under the Dingley act, which was to expire on February 7, 1910. Unless a new arrangement were made, the full German tariff rates would apply to all United States imports, and the maximum rates under the Aldrich-Payne act would, after April 1, 1910, apply to German imports into the United States. One of the demands of the American government was for the relaxing of certain severe restrictions imposed by Germany upon the import of American cattle. The German government, however, maintained that these were necessary for sanitary reasons. The danger of a tariff war with the United States was finally removed by an agreement early in February, whereby the two countries were to trade with each other on a basis of the minimum rates. The strict regulations as regards American cattle, which were supposed to be due to the influence of the Agrarian party, were not relaxed, but by the terms of agreement the question was set aside for future consideration.

**OTHER EVENTS.** It was announced by the Imperial Finance Minister in March that the deficit was \$44,500,000. As to the returns from the new taxes, they could not at present be estimated and it might not be possible to determine their amount until 1912. A contest arose with the Poles in February on account of the dismissal by the government of Polish petty officials who had voted for Polish candidates. The Poles protested against this course, but the Chancellor replied that every one must uphold Prussia's Polish policy. In the middle of April a serious lockout occurred in the building trade, throwing a very large number of men out of employment, but an agreement was reached early in June. A serious shipbuilding strike was carried on in August and September, and by October 1 had reached dangerous dimensions, some 22,000 men being out of employment. The Association of Employers decided to lock out 60 per cent. of their men unless the strike terminated, and in some cities they gave the strikers a week's notice to return to their work. Soon afterwards, however, a compromise was reached. The men, who had demanded a reduction of from

three to four hours a week and a 10 per cent. increase in wages, received a reduction of one hour a week and an increase of about 4 or 5 per cent. in wages. On March 30, a disastrous railway accident occurred at Mülheim-on-the-Rhine, in which 21 soldiers were killed and 130 seriously injured. Floods in the River Ahr caused serious loss of life and damage to property. Floods also occurred at Oberammergau. Early in July it was announced by the Imperial authorities that they had come to a complete agreement in regard to the constitution of Alsace-Lorraine. The provisions of the proposed constitution had not been made public at the close of the year, but it was reported that while granting a considerable measure of autonomy they did not make Alsace-Lorraine a constituent state of the empire, but left it in the status of a province, and that its government was to be constituted as follows: Two chambers, the lower to be filled by universal suffrage with plural voting for the older citizens, the upper partly by special qualification and partly by nomination; the province to have a voice in the Federal Council, but not a vote; the Emperor to nominate one-half the members of the upper house by advice of the Federal Council, and to appoint the governor, subject to the approval of the President of the Federal Council, that is the Chancellor. In the by-elections the Socialists continued to gain, and after the by-election of July 30, in Württemberg, in which the Socialist candidate won, the number of Socialists in the Reichstag was 50. The centenary of Berlin University was celebrated on October 10, with the Emperor and other members of the royal family in attendance. The King and Queen of Belgium visited Potsdam and Berlin at the end of May. The Emperor William visited the Emperor Francis Joseph at Vienna on September 20; visited the King and Queen of Belgium on October 25, and met the Czar at Potsdam on November 4. The arrest of two English officers on the charge of spying into the defenses of Borkum caused much comment in the British press. The trial was held at Leipzig, and on December 21 the officers were found guilty and sentenced to four years' detention in the fortress. The severity of this sentence caused the English press to remark on the contrast to the leniency shown in a nearly parallel case in Great Britain, a German officer having been tried for spying into the British defenses, and dismissed by the British court with a slight punishment.

**GIBBON, LARDNER.** A former officer of the United States navy, died January 9, 1910. He was born in Philadelphia in 1829 and was appointed a midshipman in the navy. He became a lieutenant in 1851. In the early fifties he conducted an expedition from the coast of Peru across the Andes and down the Madeira and Amazon rivers, traveling about 2000 miles in a canoe. A book describing this expedition was published by the government. He was the first to suggest the building of a railway around the falls of the Madeira River for the opening of a highway from Bolivia to the Atlantic coast. Such a railway is now in course of construction by the government of Brazil. In 1857 Gibbon resigned his commission in the navy and during the Civil War was in the service of the Confederacy.

**GIBRALTAR.** A British crown colony and naval station on the southern coast of Spain.

Area, 1½ square miles; greatest elevation, 1439 feet; population, estimated 1908, 23,443 (civil, 18,316; actual military, 5127). Average births, 27.55, average deaths, 18.7, per 1000 of the fixed civil population. There are private and government schools, with 2474 pupils in 1908-9; government grant, £1938. Roman Catholics predominate. There are practically no industries. The port is free and is the mart of a considerable trade between Great Britain and northern Africa. It is also a great coaling station, and the principal base of the Atlantic fleet. A deep harbor of 260 acres accommodates the largest vessels, and 50 acres have been reclaimed in addition for the new dockyard. Length of new docks, 850 feet (double), 550, and 450. Total tonnage entered (1908), 4,586,142 (British, 2,853,700). There are four miles of internal telegraph besides external cable communications. Revenue and expenditure (1908), £82,524 and £79,523 respectively. Governor and commander-in-chief, General Sir A. Hunter, in place of General Sir F. W. E. Forestier-Walker, who died Aug. 31, 1910.

**GIFFEN, Sir ROBERT.** A journalist, financier, writer and statistician, died April 10, 1910. He was born at Strathaven, Lanarkshire, Scotland, in 1837 and was educated in the schools of his native town and at Glasgow University. He began newspaper work as a reporter on the staff of the *Stirling Journal* in 1860. In 1862 he obtained a position on the *London Globe* which he occupied until 1866. In that year he became assistant to John Morley in the editorial conduct of the *Fortnightly Review*. From 1868 to 1876 he was assistant editor and principal contributor to the *Economist* under the editorship of Walter Bagehot, and served during a part of the same period as city editor of the *London Daily News*, for which he furnished a daily trade and financial article. He was appointed in 1876 chief of the statistical department of the Board of Trade. He continued to hold office after it was merged in 1882 with that of assistant secretary of the Board of Trade. As a result of another change in the organization of the department, he was, in 1892, appointed comptroller-general of the commercial, labor and statistical departments. He retired in 1897. He was a contributor on financial and economic subjects to the *Fortnightly Review*, the *Saturday Review*, and the *Spectator*. Among his published works are the following: *American Railways as Investments* (1873); *Stock Exchange Securities* (1878); *Essays in Finance* (1st series, 1879; 2d series, 1886); *Progress of the Working Classes in the Last Half-Century* (1884); *The Growth of Capital* (1890); *The Case against Bimetallism* (1892); *Economic Inquiries and Studies*, 2 vols. (1904).

**GIFTS AND BEQUESTS.** The list of gifts and bequests in 1910 given below is taken from the *Chicago Tribune*, which collects these data annually.

The year 1910, as 1909, was characterized by extraordinary beneficence. The gifts and bequests amounted to a total of \$141,604,538, while the total in 1909 was \$147,641,253. Of the amount for 1910 \$97,492,407 represents gifts, and \$44,112,131, bequests. To charities of various kinds was given \$56,229,243; to educational institutions, \$61,283,182; to religious institutions, \$12,654,443; to art museums, galleries and public improvements, \$9,536,680. A significant feature of the report for 1910 is the

rapidly decreasing amount given to libraries (\$1,911,000). Notable also is the increased beneficence of women.

As in previous years, the names which head the list of benefactors are those of Andrew Carnegie and John D. Rockefeller. Mr. Carnegie's gifts up to the close of 1910 are estimated at nearly \$180,000,000. Mr. Rockefeller's are estimated at \$135,000,000. Mrs. Russell Sage occupies third place in the amount of benefactions, and the total amount distributed by her since the death of Mr. Sage is about \$22,000,000. Among the most notable gifts of the year were those of Mrs. E. H. Harriman, who gave land along the Hudson to the State of New York for a State park; Isaac C. Weyman, who left \$4,000,000 to Princeton University, and those of David Ranken and Sons of St. Louis, who gave \$3,000,000 to the Ranken Trade School.

The following list includes gifts which amount in value to \$5000 and over.

- Aaron, Louis I., Pittsburg, Pa., gift to charity, \$60,000.
- Abbott Academy, gift by F. F. Raymond, \$5000.
- Abraham, Henry, New Orleans, La., gift to charity, \$7500.
- Ackerson, T. B., Brightwater, L. I., gift to town, \$250,000.
- Adams, Edward, New York, gift to Columbia College, \$30,000.
- Adams, Francis C., New York, will to charity, \$60,000.
- Adams, Mr. and Mrs. George E., Chicago, Ill., gift for small park, \$15,000.
- Agassiz, Alexander, Boston, Mass., gift to Harvard University, \$200,000; gift to American Academy of Arts and Science, \$50,000; gift to National Academy of Science, \$50,000.
- Agricultural College, Normal, Ala., gift by N. F. McCormick, Chicago, Ill., \$12,000; gift by Virginia McCormick, \$5000.
- Alassard, Henry, Nashua, N. H., gift to charity, \$43,000.
- Allegheny College, gift by J. F. Eberhart, \$25,000; Allen, M. C., Glens Falls, N. Y., will to Masonic bodies, \$45,000.
- Alstead, N. H., gift of library by Mr. and Mrs. J. G. Shedd, \$150,000.
- America University, gift by Sarah M. Billings, \$5000.
- American Academy of Arts and Science, gift by Alexander Agassiz, \$50,000.
- American Bible Society, gift by various donors, \$500,000.
- American Geographical Society, N. Y., gift by D. O. Mills, \$25,000.
- American Museum of Natural History, gift by Mrs. M. K. Jesup, \$50,000.
- American Scandinavian Society, gift by Neils Poulsen, \$100,000.
- American University, gift by unnamed donor, \$50,000; gift by A. L. and Mary C. Maris, \$50,000.
- Ammon, Margaret, Bloomington, Ill., gift to charity, \$30,000.
- Andersen, Lars, Boston, Mass., gift of bridge to Cambridge, Mass., \$300,000.
- Andrew, U. J., Bath, N. Y., will to Muhlenberg College, \$6000.
- Angell, Helen B., Boston, Mass., gift to charity, \$200,000.
- Anti-Tuberculosis Institute, gift by Mrs. Keith Spalding, \$7000.
- Anti-Tuberculosis Society, gift by J. W. Bochner, \$10,000.
- Archbold, J. R., New York, gift to State Park, \$50,000.
- Archeri, Joseph, Passaic, N. J., gift to charity, \$25,000.
- Armour, J. O., Chicago, Ill., gift to Armour Institute, \$70,000.
- Armour Institute, gift by J. O. Armour, \$70,000.
- Arnot, Mathias H., Elmira, N. Y., gift to Art Gallery, \$600,000; to Yale University, \$15,000; for hospital \$30,000; to church \$30,000.
- Art Association, gift by Frederick Layton, Milwaukee, Wis., \$5000.
- Art College, New York, gift by unnamed donor, \$15,500.
- Art Institute, Chicago, Ill., gift by various donors, \$31,000.
- Art Museum, Boston, Mass., gift by Mrs. W. F. Fitz, \$17,000.
- Associated Jewish Charities, gift by various donors, \$50,000.
- Atlanta, Ga., gift for state museum by various donors, \$75,000.
- Atwood, Frank M., Chicago, Ill., gift to charity, \$50,000.
- August, Joseph, Cleveland, O., gift to Denver Jewish Hospital, \$25,000.
- Augustana College, gift of library by Kenkman family, \$175,000; gift by various donors, \$250,000; gift by Frederick Meyerhauser, \$150,000.
- Austin, Margaret, Bridgeport, Conn., gift to charity, \$50,000.
- Avery, S. P., Hartford, Conn., gift to Chicago Art Institute, \$10,000.
- Bacon Academy, gift by Julia D. Tainor, \$5000.
- Baer, George E., Reading, Pa., gift to Franklin and Marshall College, \$50,000.
- Bainbridge, Caroline H., San Francisco, Cal., gift to charity, \$12,000.
- Baker, G. F., New York, gift to State Park, \$50,000.
- Baldwin College, gift by J. A. and Anna Motter, \$30,000.
- Bamberger, Max, Philadelphia, Pa., gift to charity, \$500,000.
- Banbach, Rosa, Sandusky, O., gift to charity, \$50,000.
- Barbour, Edmund B., Boston, Mass., gift to Massachusetts College, \$500,000.
- Barker, Francis, Everett, Kan., gift to library, \$6000.
- Barnard College, gift by Mary E. Brinckerhoff, \$50,000; gift by various donors, \$7000.
- Barney, Newton, Farmington, Conn., gift to Yale University, \$20,000.
- Bartlett, A. C., Chicago, Ill., gift to Old People's Home, \$50,000.
- Bean, Mary S., Norristown, Pa., gift to charity, \$10,000.
- Beebe, Lydia A., Wellesley, Mass., gift to church, \$94,500; gift to education, \$8000.
- Beggs, Robert H., Denver, Colo., gift to Denver University, \$20,000.
- Belleville, N. J., Library, gift by Andrew Carnegie, \$20,000.
- Bellingham Chautauqua Association, gift by Genevieve C. Phipps, \$50,000.
- Beloit College, gift by Francis E. Curtiss, \$25,000.
- Bemis, George, Spencer, Mass., gift to church,

\$16,000; gift to charity, \$65,000; gift to library, \$15,000.

Benson, Susan E., Reading, Pa., gift to education, \$5000; gift to church, \$48,000; gift to charity, \$25,000.

Benton, Edward, Greenfield, Mass., gift to town, \$8000.

Berea College, gift by W. S. Hubbell, \$50,000.

Berlin-American Institute, gift by James Speyer, New York, \$100,000; gift by Arthur Reppel, \$100,000.

Berlin University, gift for library by Jacob Schiff, \$25,000.

Berwind, John E., New York, gift to Manassas School for Colored Youth, \$15,000.

Bible Society, gift by Helen Gould, \$25,000.

Bigelow, John, New York, gift of library to Malden, N. Y., \$50,000.

Bigelow, L. F., family, New York, gift to church, \$10,000.

Billings, Sarah M., Wellboro, Pa., gift to America University, \$5000.

Billmeyer, Susanne, Philadelphia, Pa., gift to charity, \$5000.

Bixby, W. K., St. Louis, Mo., gift to hospital at Adrian, Mich., \$25,000.

Blue Ridge Association, gift by John D. Rockefeller, \$50,000.

Bochner, J. W., Evansville, Ind., gift to Anti-Tuberculosis Society, \$10,000.

Bogue, S. W., New York, gift to Dickinson College, \$50,000.

Bonney, J. T., Norfolk, Va., gift for Home for Girls, \$200,000; will to charity, \$400,000.

Bonsall, Ellwood, Philadelphia, Pa., gift to church, \$54,400.

Bookwalter, J. W., Springfield, O., gift to charity, \$7000.

Booth, R. A., Salem, Ore., gift to Willamette University, \$100,000.

Boston, Mass., gift for children's hospital by F. W. Hunnewell, \$150,000; gift for children's hospital by various donors, \$79,000.

Boston University, gift by unnamed donor, \$100,000.

Botsford, C. M., Boston, Mass., will to Idaho Industrial Institute, \$10,000; will to Fargo College, \$10,000; will to W. C. T. U., \$10,000.

Boys' Club, gift by Mrs E. H. Harriman, \$113,000.

Brayton, Mrs. H. A., Fall River, Mass., gift to Y. M. C. A., \$5000.

Brightwater, L. I., gift to town by T. B. Ackerson, \$250,000.

Brinckerhoff, Mary E., New York, gift to Metropolitan Museum, \$10,000; gift to charity, \$39,000; gift to Barnard College, \$50,000.

Brittan, Amelia C., Pottstown, Pa., gift to charity, \$25,000.

Bronx Botanical Gardens, N. Y., gift by D. O. Mills, \$50,000.

Bross estate, gift of library to Winnetka, Ill., \$30,000.

Brown, Harriett A., Boston, Mass., will to church, \$15,000.

Brown, Hattie Q., Xenia, O., gift to Wilberforce College, \$13,000.

Brown, Julius L., Atlanta, Ga., gift to Georgia School of Technology, \$100,000.

Browne, James, Philadelphia, Pa., gift to charity, \$12,500.

Bryant, Nathaniel A., Adrian, Mich., gift to Y. M. C. A., \$10,000.

Buchtel College, gift by unnamed donor, \$30,000.

Budapest Academy of Sciences, gift by Gladys Vanderbilt Szechenyi, \$125,000.

Burdette, Mrs. R. J., Pasadena, Cal., gift to Throop Polytechnic Institute, \$5000.

Burton, J. H., May's Landing, N. J., gift to church, \$10,000.

Burton, W. H., Mobile, Ala., gift to church, \$25,000.

Busch, Adolphus, St. Louis, Mo., gift to German Museum, Harvard University, \$100,000.

Bush, John C., Mobile, Ala., gift to Howard College, \$10,000; gift to Judson Institute, \$10,000; gift to church, \$40,000; gift to charity, \$10,000.

Butler, Mrs. H. B., Chicago, Ill., gift to charity, \$50,000.

Butler, J. A., Buffalo, N. Y., will to charity, \$18,000; will to church, \$7000.

Butler, James G., St. Louis, Mo., gift to Y. W. C. A., \$50,000.

Buttrick, Martha M., Lowell, Mass., gift to charity, \$12,300.

Byers, Annie H., Pittsburg, Pa., gift to charity, \$100,000.

Cambridge, Mass., gift of bridge by Lars Andersen, Boston, Mass., \$300,000.

Campbell, Mary A., Philadelphia, Pa., will to charity, \$5000.

Canisius College, gift by various donors, \$101,040.

Capen, Elizabeth F., Oldham, Mass., gift to hospital, \$12,000.

Carbago Earthquake Fund, gift by various donors, Boston, Mass., \$25,000.

Carhart, Hamilton, Detroit, Mich., gift to National Railroad Men's Home, \$100,000.

Carle, Levi B., Janesville, Wis., gift to Y. M. C. A., \$5000.

Carnegie, Andrew, gift of library to Richmond, Wis., \$10,000; gift of library to Muskogee, Okla., \$45,000; gift to New York Zoological Society, \$5000; gift to Thomas College, \$25,000; gift to library at Belleville, N. J., \$20,000; gift to Cornell University, \$50,000; additional gift to Martha Berr School, \$25,000; conditional gift to Wilberforce University, \$17,500; gift of library to Midland College, Kan., \$15,000; gift to Uncle Remus Fund, \$5000; gift to cause of international peace, \$11,500,000; gift to Vassar College, \$10,000; gift to Pittsburg Teachers' Association, \$10,000; additional gift to Carnegie Institute, \$3,500,000; gift of library to Brownsville, Tenn., \$7500; gift to Latin Academy, \$25,000; gift to University of the South, \$50,000; gift to Southern Female College, \$6700; gift for benefit of Pittsburg teachers, \$300,000; gift for benefit of teachers in nine cities, \$2,700,000; gift of library to Wells College, \$40,000; gift to Pittsburg Civic Commission, \$10,000; gift to hospital at Pasadena, Cal., \$5000; gift of library to Detroit, Mich., \$750,000; gift to Chatham Episcopal Institute, \$5000; gift to Manassas Colored Industrial School, \$15,000; gift to Reuben McMillan Free Library, Youngstown, Ohio, \$50,000; gift to Wheaton College, \$25,000; additional gift to library at Reading, Pa., \$25,000; gift of library to negroes in Savannah, Ga., \$12,000; gift to charity at Dunfermline, Scotland, \$150,000; gift to Mount Union College, \$50,000; gift of library to Pensacola, Fla., \$50,000; gift to Elmira College, \$30,000; gift for library at Summit, N. J., \$25,000; gift of library to Reading, Pa., \$30,000; gift for library at Gary, Ind., \$50,000; gift of library to Pottsville, Pa., \$10,000.

Carnegie Institute, additional gift by Andrew Carnegie, \$3,500,000.

Carpenter, Mrs. F. C., Manchester, N. H., gift to church, \$15,000; gift to charity, \$25,000.

Carpenter, J. C., Richmond, Va., gift to charity, \$10,000.

Catholic University of America, gift by Emily Lusby, \$100,000; gift by unnamed donor, \$100,000.

Chamberlain, Kate, Brookline, Mass., gift to charity, \$92,000.

Chamberlin, E. D., Boston, Mass., gift to Hebron (Me.) Sanitarium, \$215,000.

Champlin, Julia M., Brookline, Mass., gift to charity, \$155,000; gift to church, \$75,000; gift to Museum of Fine Arts, \$10,000.

Chatham Episcopal Institute, gift by Andrew Carnegie, \$5000.

Chicago, Ill., gift for park by W. H. Wilson, \$10,000; gift for park by Mr. and Mrs. George E. Adams, \$15,000; gift to hospitals by various donors, \$30,000; gift for Presbyterian service in Illinois State University, \$60,000.

Chicago Art Institute, gift by S. P. Avery, Hartford, Conn., \$10,000.

Chicago Y. M. C. A., gift by Sears, Roebuck & Co., \$100,000; gift by John Shedd, Chicago, \$50,000.

Chubbuck, W. C., Providence, R. I., gift to charity, \$5000.

City Missions, Chicago, Ill., gift by William Deering, \$5000.

Clark, Rufus, Denver, Colo., gift to Clark Theological and Training School, \$75,000.

Clark, W. A., gift to charity, \$500,000; gift of Home for Young Women, Los Angeles, Cal., \$500,000; gift to Los Angeles, Cal., Y. M. C. A., \$150,000.

Clemens, Samuel L., Redding, Conn., gift to library, \$6000.

Cleveland, O., gift to Veterinary Hospital by various donors, \$30,000.

Clinton, Mo., gift of park by H. P. Faria, \$75,000.

Coburn, Lewis L., Chicago, Ill., gift to University of Vermont, \$25,000.

Coker, J. L., Hartsville, S. C., gift to teachers' college, \$180,000.

Cole, H. C., Mineola, L. I., gift to charity, \$9850.

Cole, Harriet, Glenlake, L. I., gift to charity, \$1,000,000.

Coleman, Florence, Sacramento, Cal., gift to charity, \$30,000; gift to church, \$6000.

Collendar, F. W., gift to Tulane University, \$65,000.

Collins, J. B., Fort Worth, Tex., gift to Yale University, \$60,000.

Columbia University, gift by unnamed donor, \$100,000; gift by Edward Adams, New York, \$30,000; gift by other donors, \$50,000; gift by unnamed donor, \$350,000; gift by various donors, \$15,550; gift by unnamed donor, \$30,000; gift by various donors, \$28,000; gift by four donors, \$3,000,000.

Columbian University, gift by Lambert Tree, \$10,000.

Connecticut Baptist Association, gift by Joseph Hull, \$100,000.

Connecticut Wesleyan University, gift by J. D. Rockefeller, \$100,000.

Connor, Anne J., Philadelphia, Pa., gift to charity, \$9000; gift to church, \$5000.

Converse, John H., Philadelphia, Pa., gift to

Presbyterian Church Board, \$200,000; gift to charity, \$50,000.

Core, John H., Norfolk, Va., will to hospital, \$10,000.

Cornell University, gift by Andrew Carnegie, \$50,000; gift by Goldwin Smith, \$689,000.

Cornish, Mrs. E. J., Omaha, Neb., gift for park, \$10,000.

Corr, Matthew, Philadelphia, Pa., gift to charity, \$100,000.

Covington Home for Aged Women, gift by John A. Simpson, \$10,000.

Coxe, Rebecca, Philadelphia, Pa., gift to educational institutions, \$20,000; gift to church, \$25,000.

Craft, Harriet O., Boston, Mass., gift to church, \$30,000.

Crane, Albert, Strawberry Hill, Conn., gift to hospital, \$35,000.

Crane, Tenor, Dalton, Mass., gift to Pittsfield Boys' Club, \$10,000.

Crary, Jeremiah, Warren, Pa., gift to church, \$10,000.

Crawford, Angeline C., Watertown, Mass., will to church, \$5000.

Crawford, W. F., Indianapolis, Ind., gift for School of Therapeutics, \$100,000.

Creech, J. W., Herington, Kan., gift to church, \$10,000.

Crim, W. L., Anniston, Ala., gift to charity, \$8000.

Crocker, George, New York, gift for investigation of cancer, \$2,000,000.

Cudahy, Michael, Chicago, Ill., gift to Loyola University, \$130,000; gifts to charity, \$22,500.

Cummings, David, Somerville, Mass., gift to Tufts College, \$65,000; gift to Dean Academy, \$40,000; gift to charity, \$95,000; gift to Dean Academy, \$50,000; gift to charity, \$74,000; gift to Perkins' Blind Institute, \$5000.

Curran, P., Philadelphia, Pa., gift to charity, \$74,500.

Curtis, Arthur, New York, gift to State Park, \$25,000.

Curtiss, Francis E., Chicago, Ill., will to charity, \$45,000; will to Williams College, \$25,000; will to Beloit College, \$25,000; will to Park College, \$2000; will to church, \$65,000.

Cushing, F. K., Chelsea, Mass., will to charity, \$10,000.

D'Aosta, Duke and Duchess, gift to Harvard University, \$20,000.

Dartmouth College, gift by Mr. and Mrs. Lewis Parkhurst, \$50,000; gift by Horace Russell, \$10,000; gift by Jane Eastman, \$30,000; gift by Edward Tuck, \$500,000.

Day, Emma J., Philadelphia, Pa., will to church, \$2000; will to charity, \$5000.

Day, Mrs. George, New York, gift to Yale University, \$100,000.

Day, Thomas, New Orleans, La., gift to charity, \$27,000; gift to Normal School, \$30,000.

Dean Academy, gift by David Cummings, \$90,000.

Deere, Mary B., Moline, N. Y., gift to Y. M. C. A., \$20,000.

Deering, William, Chicago, Ill., gift to Methodist Extension Society, \$50,000; gift to Garrett Biblical Institute, \$50,000; gift to city missions, \$5000.

Delgado, Isaac, New Orleans, La., gift for art gallery, \$250,000.

Denver Jewish Hospital, gift by Joseph Schoenberg, Cleveland, O., \$25,000; gift by

Louis Schoenberg, \$25,000; gift by Joseph August, \$25,000.  
 Denver University, gift by Robert H. Beggs, \$20,000.  
 Des Forge, George, Milwaukee, Wis., gift to public library, \$65,000.  
 De Turk, Susan L., Reading, Pa., gift to church, \$40,000.  
 Dexter, Henry, New York, gift to charities, \$1,109,200.  
 Dexter, Morton, Boston, Mass., gift to Yale University, \$25,000.  
 De Yonghe, Mrs. Henri, Chicago, Ill., gift to Loyola University, \$135,000.  
 Dickinson College, gift by Samuel B. Goff, \$5000; C. F. Schoen, \$10,000; gift by S. W. Bogue, N. Y., \$50,000.  
 Dodson, Lucinda, Philadelphia, Pa., gift to charity, \$8000.  
 Dodson, Mrs. R. F., San Pedro, Cal., gift of park to San Bernardino, \$50,000.  
 Dolger, Flora L., Philadelphia, Pa., gift to charity, \$10,000; gift to Tuskegee Institute, \$1,000,000.  
 Dorman, Mrs., New York, gift to Y. W. C. A., \$10,000.  
 Douglass, William, Manistee, Mich., gift to library, \$5000; gift to charity, \$25,000; gift to church, \$20,000.  
 Drake University, gift by Theodore P. Shonta, \$50,000.  
 Drexel, Katherine, Philadelphia, Pa., gift to church, \$8000.  
 Drown, A. U., San Francisco, Cal., gift to church, \$5000.  
 Duke, Benjamin and James, Durham, N. C., gift to Trinity College, \$130,000.  
 Duke, Benjamin M., gift to Trinity College, North Carolina, \$100,000.  
 Dun, R. G. New York, painting willed to Metropolitan Museum of Fine Arts, \$500,000.  
 Dunlevy, Elizabeth, New York, gift to church, \$10,000.  
 Earl, Hannah M., Troy, N. Y., will to charities, \$66,000.  
 Eastman, Jane, gift to Dartmouth College, \$30,000.  
 Easton College, gift by Mrs. Voorhees, \$30,000.  
 Eaton, Samuel, Danville, N. H., gift to schools, \$60,000.  
 Eberhart, J. F., Chicago, Ill., gift to Allegheny College, \$25,000.  
 Eddy, Mary Baker, Boston, Mass., gift to church, \$1,000,000.  
 Edgerton, Minnie E., Plainfield, N. J., gift to charities, \$140,000.  
 Elgin (Ill.) Academy, gift by various donors, \$20,000.  
 Elkins, Louise B., Philadelphia, Pa., gift to charity, \$500,000.  
 Elliott, Henry C., Alaska, gift to charity, \$2,500,000.  
 Ellis, William, Philadelphia, Pa., will to charity, \$40,000.  
 Ellwood, Isaac L., Dekalb, Ill., gift to Old People's Home, \$200,000; gift to Glidden Hospital, \$25,000.  
 Elmira Art Gallery, gift by M. H. Arnot, \$600,000.  
 Elmira College, gift by unnamed donor, \$10,000; gift by Andrew Carnegie, \$30,000; gift by various donors, \$112,260.  
 Ely, Smith, New York, gift to State Sunday School Association, \$50,000.

Emory College, gift by various donors, \$200,000.  
 Erwin, Thomas, Philadelphia, Pa., gift to hospital, \$6700.  
 Evans, Anna M., Philadelphia, Pa., gift to hospital, \$5000.  
 Evans, W. T., Montclair, N. J., gift for art museum, \$60,000.  
 Evanston, Ill., gift of park by W. S. Mason, \$20,000.  
 Evanston, Ill., gift of land by Northwestern University, \$20,000.  
 Evanston Hospital, gift by George W. Patten, \$500,000.  
 Fargo College, gift by C. M. Botsford, \$10,000.  
 Faris, H. P., Clinton, Mo., gift of park to town, \$75,000.  
 Farr, A. G., Chicago, Ill., gift to Ripon College, \$8000.  
 Field, Joseph W., London, gift to Chicago Y. M. C. A., \$50,000.  
 Fitz, Mrs. W. F., Boston, Mass., gift to Art Museum, \$17,000.  
 Flagler, Mrs. B. F., Niagara Falls, N. Y., gift to charity, \$5000.  
 Fordham College, gift by various donors, \$25,000.  
 Forsyth, T. A., Boston, Mass., gift to charities, \$2,000,000.  
 Fort Worth University, gift by unnamed donor, \$100,000.  
 Foster, Sarah E., Boston, Mass., gift to charity, \$47,900.  
 Fox, George L., Brooklyn, N. Y., gift to charity, \$1,600,000.  
 Fox, Henry C., Philadelphia, Pa., will to hospital, \$20,000.  
 Francis, Salome, Morrison, Ill., will to church, \$16,000.  
 Franklin and Marshall College, gift by George E. Baer, \$50,000; gift by E. F. Fuchenthal, \$40,000.  
 Friedman, Joseph, San Francisco, Cal., gift to poor in Russia, \$50,000.  
 Frothingham, Mary N., Cambridge, Mass., gift to charity, \$7500.  
 Fuchenthal, E. F., Regelsville, Pa., gift to Franklin and Marshall College, \$40,000.  
 Futhey, R. A., Westchester, Pa., gift to charity, \$21,500.  
 Garrett Biblical Institute, gift by William Deering, \$50,000.  
 Gary, E. H., New York, gift to State Park, \$50,000.  
 Gates, John W., gift for university at Port Arthur, Tex., \$675,000.  
 General philanthropy, gift for, by unnamed donor, New York, \$2,500,000.  
 George Junior Republic, gift by various donors, New York, \$26,000; gift by J. D. Rockefeller, \$7500.  
 Georgia Medical Society, gift by J. E. Mean, \$5000.  
 Georgia School of Technology, gift Julius L. Brown, \$100,000; gift by J. D. Rockefeller, \$50,000; gift by various donors, \$15,000.  
 German Hospital (New York), gift by George F. Vieto, \$5000; gift by Anna Woerrishaefter, \$100,000; gift by unnamed donor, \$5000.  
 German Old People's Home, gift by Alma Seipp, \$25,000.  
 Germantown Hospital, gift by Justus P. Jones, \$25,000.

Gerrish, Jane S., Newburyport, Mass., gift to church, \$35,000.

Gibbs, Mrs. T. K., Newport, R. I., gift to Y. M. C. A., \$15,000.

Gillingham, Emma, Philadelphia, Pa., gift to charity, \$7000.

Ginn, Edward, Boston, Mass., gift to International Society of Peace, \$50,000.

Ginn, F. B., San Francisco, Cal., gift to charity, \$43,000.

Girls' College, Anderson, S. C., gift by various donors, \$100,000.

Glidden Hospital, gift by Isaac L. Ellwood, \$25,000.

Gobin, J. P. S., Lebanon, Pa., gift to charity, \$7000; gift to church, \$7500; gift to Susquehanna University, \$2000.

Goff, Samuel B., Camden, N. J., gift to Dickinson College, \$5000.

Goodyear, L. H., Borgalusa, La., gift to Y. M. C. A., \$30,000.

Gould, Helen, New York, gift to State Park, \$25,000; gift to Bible Society, \$25,000.

Gould, Katherine K., New York, gift to Industrial School, \$80,000.

Graves, Margaret J. P., New York, gift to charity, \$155,000.

Gray, Anna, New York, will to charity, \$15,000.

Green, Hetty, New York, gift of land to city, \$500,000.

Greene, George F., Brookline, Mass., gift to church, \$11,700; gift to charity, \$8300.

Greenfield, Mass., gift to town by Edward Benton, \$8000.

Hahn, Mrs. Richard, Muskegon, Mich., gift to church, \$10,000.

Hall, Bridget, Philadelphia, Pa., will to charity, \$7000.

Halstead, Laura P., New York, gift to charity, \$20,000.

Hamburger, Nathan, Milwaukee, Wis., gift to charity, \$9000.

Hamlin, Mrs. William, Buffalo, N. Y., gift to Nurses' Home, \$45,000.

Hanna, H. M., Cleveland, O., gift to Western Reserve University, \$250,000.

Hannaford, E. B., Rumford, Me., gift to church, \$5000.

Harding, W. P., Cambridge, Mass., gift to Harvard University, \$5000.

Harkness, Edward S., New York, gift to New York Presbyterian Hospital and Columbia University, \$300,000.

Harriman, Mrs. E. H., New York, gift to Yale University, \$100,000; gift to State for maintaining park, \$1,000,000; gift for tuberculosis sanitarium, \$25,000; gift of gymnasium to church, \$35,000; gift to Boys' Club, \$113,000.

Hartford Art Museum, gift by J. Pierpont Morgan, \$250,000.

Harvard University, gift by James R. Rich, \$20,000; gift by Duke and Duchess D'Aosta, \$20,000; gift by Adolphus Busch, \$100,000; gift by F. F. Raymond, \$5000; gift by Alexander Agassiz, \$200,000.

Harwi, A. J., Atchison, Kan., will to library, \$10,000; will to Midland College, \$15,000.

Haverford College, gift by various donors, \$130,000.

Haverstock, Rebecca E., Philadelphia, Pa., will to church, \$5000.

Hay, Mrs. John, gift to Yale University, \$5000.

H. C. Frick Coke Co., gift of land to Fayette County, Pa., \$100,000.

Healy, Anna, Boston, Mass., gift to charity, \$19,000; gift to church, \$51,000.

Healy, J. M., Gloucester, Mass., will to charity, \$250,000.

Hebrew Orphan Home, gift by Adolph Lewisohn, \$75,000.

Hebrew Sheltering Guardian Society gift by Alice and Irene Lewisohn, N. Y., \$192,000; gift by Adolph Lewisohn, \$118,000; gift by Jacob H. Schiff, \$35,000.

Hebron (Me.) Sanitarium, gift by E. D. Chamberlin, Boston, Mass., \$215,000.

Heinsheimer, Alfred, New York, gift to charity, \$1,000,000.

Helen Day Nursery, gift by Mrs. Levy Mayer, \$15,000.

Henderson, Mary G., Philadelphia, Pa., will to charity, \$89,000.

Hendrix College, gift by W. W. Martin, \$25,000.

Hensland, Hattie, Madison, Wis., gift to church, \$50,000; gift to charity, \$200,000.

Heriman, W. H., New York, gift to aid children, \$100,000.

Heydlauff, Maria, Grand Rapids, Mich., gift to charity, \$17,000.

Higbee, George H., Burlington, Ia., gift to Y. W. C. A., \$30,000.

Hill, Arthur, Saginaw, Mich., gift to University of Michigan, \$200,000.

Hill, James J., Minneapolis, Minn., gift to Luther College, \$50,000; gift to St. Olaf's College, \$50,000.

Hill, Lillie B., Malden, Mass., gift to charity, \$8500; gift to schools, \$1900; gift to church, \$2000.

Hill, Martha S., Chicago, Ill., gift to Juvenile Protective Association, \$15,000.

Hillsdale College, gift by Koen family, \$30,000.

Hoffman, Mrs. J. O., Bryn Mawr, Pa., gift to church, \$20,000.

Holt, Mary E., Boston, Mass., gift to church, \$5500.

Home for Convalescent Women and Children, Chicago, Ill., gift by Helen Morris, \$60,000.

Home for Incurables, Oakland, Cal., gift by various donors, \$100,000.

Homeopathic Hospital, Philadelphia, Pa., gift by various donors, \$100,190.

Hooker, H. M., Chicago, Ill., gift to church, \$50,000.

Hord, T. B., Central City, Neb., gift to Nebraska Central College, \$5000.

Horwitz, Marie G., Baltimore, Md., gift to Jefferson Medical College, \$60,000.

Howard College, gift by John C. Bush, \$10,000.

Hoyt, Colgate, New York, gift to church, \$10,000.

Hubbard, Harry, New York, gift to church, \$10,000.

Hubbard, Olive L., Boston, Mass., gift to church, \$5000.

Hubbell, W. S., Canandaigua, N. Y., will to church, \$49,500; will to Berea College, \$50,000.

Huber, J. H., Springfield, Ill., gift to charity, \$50,000.

Hughes, J. S., New York, gift to church, \$25,000.

Hull, Joseph, Cheshire, Conn., gift to Connecticut Baptist Association, \$100,000.

Humphrey, J. D., New York, gift to Syracuse University, \$20,000.

Huncheon, Richard, Laporte, Ind., gift to charity, \$40,500; gift to University of Washington, \$50,000.

Hunnewell, F. W., Boston, Mass., gift for children's hospital, \$150,000.

Hunt, Martha R., Somerville, Mass., gift to charity, \$800,000.

Huntsville, S. C. (various donors), gift to charity, \$20,000.

Hurlburt, H. B., Cleveland, O., will to Lakeside Hospital, \$200,000.

Idaho Industrial Institute, gift by C. M. Botsford, \$10,000.

Illinois Wesleyan College, gift by unnamed donor, \$50,000.

Illinois Woman's College, gift by various donors, \$9000.

Ingraham, Mr. and Mrs. R. S., Sheboygan Falls, Wis., gift to Methodist Deaconesses' Pension Fund, \$10,000.

Institute of Technology (Mass.), gift by Frances I. Weston, \$10,000; gift by Edward Whitney, \$25,000.

International Society of Peace, gift by Edward Ginn, Boston, Mass., \$50,000.

Jackson, George M., Piggott, Ark., gift to charity, \$400,000.

James, Mrs. W. D., New York, gift to church, \$180,000.

James Millikin College, gift by James Millikin estate, \$100,000.

Jamestown College, gift by C. A. Sandford, \$13,000.

Jefferson Hospital, gift by Nathan Shellenberg, \$5000.

Jefferson Medical College, gift by Marie G. Horwitz, \$60,000.

Jenks, Helen H., New York, gift to Polyclinic Institute, \$125,000; W. N. Y. University, \$100,000.

Jennings, A. E., Memphis, Tenn., gift to hospital, \$10,000.

Jesup, Mrs. M. K., New York, gift to American Museum of Natural History, \$50,000.

Jewish education (New York), gift by unnamed donor, \$50,000.

Johns Hopkins University, gift by R. B. Keyser, \$100,000.

Jones, Mrs. B. F., Harrisburg, Pa., gift to Tuberculosis Hospital, \$18,000.

Jones, Jesse H., Georgetown, Tex., gift to Southwestern University, \$25,000.

Jones, Justus P., Philadelphia, Pa., gift to Germantown Hospital, \$25,000.

Jordan, B. W., Independence, Mo., will to hospital, \$30,000.

Judson Institute, gift by John C. Bush, \$10,000.

Juvenile Protective Association, gift by Martha S. Hill, \$5,000.

Kaplan, L. H., Anniston, Ala., will to hospital, \$100,000.

Kasson, John A., Washington, D. C., will to church, \$500,000.

Kaufman, Amelia A., New York, gift to charity, \$6000.

Kaye, J. W., Philadelphia, Pa., gift to charity, \$480,000.

Kearney, Theodore, Fresno, Cal., gift to University of California, \$500,000.

Keating, Thomas S., Ottawa, Ill., gift to charity, \$125,000.

Kenkman family, Rock Island, Ill., gift of library to Augustana College, \$175,000.

Kennedy, Mrs. J. S., New York, gift to Wooster University, \$100,000; gift to State Sunday School Association, \$5000.

Kenosha, Wis., gift to hospital by unnamed donor, \$10,000.

Kerens, B. C., St. Louis, Mo., gift to Newsboys' Home, \$20,000.

Kernan, James L., Baldwin, Md., gift for home for crippled children, \$100,000.

Keyser, R. B., gift to Johns Hopkins University, \$100,000.

Kezar, Nancy H., San Francisco, Cal., gift to library at Romeo, Michigan, \$10,000.

King, S. E., Ottawa, Ill., gift to education, \$110,000; gift to Y. M. C. A., \$50,000; gift to hospital, \$40,000.

Koen family, Hillsdale, Mich., gift to Hillsdale College, \$30,000.

Kuser, Anthony R., New York, gift to N. Y. Zoölogical Society, \$60,000.

Lakeside Hospital, Cleveland, O., gift by H. B. Hurlburt, \$200,000.

Landis, C. K., Vineland, N. J., will to Historical Society, \$24,000.

Lang, Miss Henry, Montclair, N. J., gift for art museum, \$50,000.

Latin Academy, gift by J. D. Rockefeller, \$75,000; gift by Andrew Carnegie, \$25,000.

Lawler, Annie, Philadelphia, Pa., gift to charity, \$43,000.

Lawrence College, gift by various donors, \$41,000.

Layton, Frederick, Milwaukee, Wis., gift to Art Association, \$5000.

Leach, Mary A., Derry, N. H., gift to church, \$50,000.

Lee, A. M., Charleston, S. C., gift to charity, \$8000; gift to church, \$2000.

Leeds, Mrs. W. B., N. Y., gift to charity, \$25,000.

Lever, J. B., Martinsville, La., gift to school, \$8000.

Lewisohn, Adolph, New York, gift to Mount Sinai Hospital, \$130,000; gift to Hebrew Orphan Home, \$75,000; gift to Hebrew Sheltering Guardian Society, \$118,000; gift to Yale University, \$100,000.

Lewisohn, Alice and Irene, N. Y., gift to Hebrew Sheltering Guardian Society, \$192,000.

Lippman, Abraham, Pittsburg, Pa., gift to charity, \$7200.

Lloyd, H. D., Somerville, Mass., gift to Soldiers' Home, \$5000.

Loeb, James, Munich, endowment of N. Y. Inst. of Music and Art, \$500,000.

Loncheim, Joseph (family), Philadelphia, Pa., gift to church, \$5000.

Long, R. A., Kansas City, Mo., gift to Transylvania University, \$30,000.

Loomis, Mary H., Chicago, Ill., gift to church, \$25,000; gift to charity, \$45,000.

Loomis estate, Chicago, gift to Loomis Institute, \$1,250,000.

Lord, Marion F., Wells, Maine, will to charity, \$17,500.

Lord, R. W., Boston, Mass., gift to charity, \$12,000.

Los Angeles, Cal., gift of Home for Young Women by Wm. A. Clark, \$500,000.

Loyola University, gift by Michael Cudahy,

\$130,000; gift by Mrs. Henri De Yonghe, \$135,000.

Ludington, Mrs. D. P., Springfield, Mass., gift to church, \$10,000.

Ludington, F. H., St. Louis, Mo., gift to church, \$118,000.

Lull, Mary A., Milford, N. H., gift to town, \$50,000.

Lummis, Charles F., Los Angeles, Cal., gift to Southwest Museum, \$150,000.

Lusby, Emily, Baltimore, Md., gift to Catholic University of America, \$100,000.

Luther College, gift by James J. Hill, \$50,000.

Lyman, Charles W., New York, gift to Yale University, \$5000.

Lyman, S. H., New York, gift to Yale University, \$700,000.

McBirney, Hugh, Chicago, Ill., gift to church, \$5000.

McBride, Mary C., Jersey City, N. J., gift to charity, \$75,000.

McClure, H. C., Los Angeles, Cal., gift to church, \$16,000.

McCormick, Mary B., Chicago, Ill., gift for equipment of Toronto playground, \$10,000.

McCormick, N. F., Chicago, Ill., gift to Agricultural College, Normal, Ala., \$12,000.

McCormick, Virginia, Chicago, Ill., gift to Agricultural College, Normal, Ala., \$5000.

McCullagh, P. J., Lancaster, Pa., gift to charity, \$85,000.

McCullough, J. G., Bennington, Vt., gift to Middleburg College, \$25,000.

McDonald, Eliza A., Ebensburg, Pa., gift to charity, \$70,000.

Macey, Mrs. G. V. E., gift to State Park, \$25,000.

McGregor, Catharine, Detroit, Mich., gift to University of Michigan, \$13,000.

McHenry, Oramel, Modesto, Cal., will for library, \$20,000.

McLaughlin, Mary L., Hagerstown, Md., will to charity, \$12,000.

McQuaid, Bridget, Philadelphia, Pa., gift to church, \$8500.

Madison, Wis., gift for park by Mrs. Henry Vilas, \$25,000.

Manassas Colored Industrial School, gift by various donors, \$35,000; gift by Andrew Carnegie, \$15,000.

Manassas School for Colored Youth, gift by John E. Berwind, \$15,000.

Maris, A. L. and Mary C., Tuscola, Ill., gift to American University, \$50,000.

Marks, Clarence W., Chicago, Ill., gift to charity, \$10,000; gift to library, \$5000.

Marquette University, gift by Louise C. Thomas, \$50,000.

Marsh, Caroline M., Dover, N. H., will to charity, \$63,000; will to church, \$81,000; will to colleges, \$48,000.

Marston, Edgar L., New York, gift to church, \$25,000.

Martha Berr School, gift by Mrs. Russell Sage, \$25,000; gift by Andrew Carnegie, \$25,000; gift by various donors, \$50,000.

Martin, W. W., Conway, Ark., gift to Hendrix College, \$25,000.

Martinsville, La., gift to school by J. B. Levert, \$8000.

Mary Day Nursery, gift by George T. Perkins, \$50,000.

Mason, George G. and W. S., Evanston, Ill., gift to Yale University, \$250,000.

Mason, Mary A., Pittsfield, Mass., gift to

hospital, \$500,000; gift to charity, \$140,000; gift to library, \$50,000; gift to church, \$10,000; gift to charity, \$640,500.

Mason, W. S., Evanston, Ill., gift to park, \$20,000.

Mason, W. S., gift of small park to Evanston, Ill., \$25,000.

Masonic bodies, gift by M. C. Allen, \$45,000.

Masonic Home, gift by Ammi W. Wright, Alma, Mich., \$200,000.

Massachusetts College, gift by Edmund Barbour, \$500,000.

Mayer, Mrs. Levy, Chicago, Ill., gift to Helen Day Nursery, \$15,000.

Meade, Helen I., Poughkeepsie, N. Y., gift to church, \$10,000.

Meadville Theological Seminary, gift by Andrew O. Slater, \$10,000.

Mean, J. E., Philadelphia, Pa., gift to Georgia Medical Society, \$5000.

Memorial Hospital, Monmouth, N. J., gift by various donors, \$40,000.

Mercer University, gift by Eliza E. Reynolds, Savannah, Ga., \$20,000.

Merrill, Thomas, Saginaw, Mich., gift to Y. M. C. A., \$5000.

Meschter, W. I., Philadelphia, Pa., gift to Perkiomen Seminary, \$5000.

Methodist Deaconess' Pension Fund, gift by Mr. and Mrs. R. S. Ingraham, Sheboygan Falls, Wis., \$10,000.

Methodist Extension Society, gift by Wm. Deering, \$50,000.

Methodist Training School, Nashville, Tenn., gift by unnamed donor, \$20,000.

Metropolitan Museum of Art, gift of painting by R. G. Dun, New York, \$500,000; gift by Mary E. Brinckerhoff, \$10,000; gift by D. O. Mills, \$100,000.

Metz, Herman, New York, gift to New York Municipal Research Bureau, \$30,000.

Meyerhauser, Frederick, Moline, Ill., gift to Augustana College, \$150,000.

Middlebury College, gift by J. G. McCullough, \$25,000; gift by Ezra T. Warner, \$25,000.

Middleton, A. H., Philadelphia, Pa., will to Swarthmore College, \$30,000.

Midland College, Kansas, gift of library by Andrew Carnegie, \$15,000; gift by A. J. Harwi, \$15,000.

Mills, D. O., New York, gift to Met. Museum of Art, \$100,000; gift to Museum of Nat. History, \$100,000; gift to Bronx Botanical Gardens, \$50,000; gift to American Geographical Society, \$25,000; gift to charity, \$125,000.

Missions, gift by various donors, Rochester, N. Y., \$84,370.

Monmouth, N. J., Memorial Hospital, gift by various donors, \$40,000.

Monroe, D. S., Altoona, Pa., gift to church, \$35,000.

Moody Institute, gift by Horace B. Silliman, \$200,000.

Moos, H. A., Springfield, Mass., gift to church, \$10,000.

Morgan, J. Pierpont, New York, gift to University of the South, \$50,000; gift to church, \$100,000; gift to tuberculosis hospital, \$40,000; gift to Red Cross movement, \$100,000; gift for State Park, \$500,000; gift to Trinity College, \$100,000; gift to Yale University, \$100,000; gift to Hartford Art Museum, \$250,000; gift to Paris Relief Fund, \$50,000.

Morris, Helen, Chicago, Ill., gift to Home for Convalescent Women and Children, \$60,000.

Motter, J. A. and Anna, Baldwin Kan., gift to Baldwin College, \$30,000.

Mount Holyoke College, gift by B. A. Simmons, \$5000; gift by various donors, \$20,000.

Mount Sinai Hospital, gift by Adolph Lewisoohn, \$130,000.

Mount Union College, gift by Andrew Carnegie, \$50,000; gift by various donors, \$100,000.

Muhlenberg College, gift by J. C. Nicum, \$10,000; gift by W. J. Andrew, \$6000.

Mulnek, Mary, Oak Park, Ill., gift to church, \$50,000.

Munroe, James, Auburn, Me., gift to charity, \$30,000; gift to church, \$21,000.

Munsey, F. A., New York, gift to State Park, \$50,000.

Murdoch, Thomas, Chicago, gift to charities, \$1,775,000.

Murray, Susan E., Washington, D. C., gift to church, \$50,000.

Museum of Natural History, gift by D. O. Mills, \$100,000.

Muskogee, Okl., gift of library by Andrew Carnegie, \$45,000.

National Academy of Science, gift by Alexander Agassiz, \$50,000.

National Association of Audubon Societies, gift by Mrs. Russell Sage, \$15,500.

National Lumber Association, gift to Yale University, \$100,000.

National Railroad Men's Home, gift by Hamilton Carhart, \$100,000.

Naylor, M. A., Kansas City, Mo., gift to charity, \$60,000.

Neafe, Mary A., Philadelphia, Pa., will to charity, \$20,000.

Nebraska Central College, gift by T. B. Hord, \$5000.

Negley, Joanna W. B., Pittsburg, Pa., gift to Western Theological Seminary, \$20,000.

Newcomer, William, Hagerstown, Md., gift to hospital, \$5000.

Newell, F. A., Providence, R. I., gift to charity, \$21,000.

Newell, Miss Mozea, New York, gift to Kenosha, Wis., hospital, \$10,000.

New Hampton Literary Institute, gift by various donors, \$15,000.

Newman, Angelina E., Saratoga, N. Y., gift to church, \$12,000.

Newsboys' Home, St. Louis, Mo., gift by B. C. Kerens, \$20,000; gift by W. H. Singer, \$10,000.

New York (various donors), gift to Red Cross, \$500,000.

New York Bible Society, gift by various donors, \$100,000; gift by various donors, \$35,000.

New York City, gift of land by Hetty Green, \$500,000.

New York Inst. of Music and Art, gift by James Loeb, \$500,000.

New York Municipal Research Bureau, gift by Herman Metz, \$30,000.

New York Presbyterian Hospital and Columbia University, gift by Edward S. Harknen, New York, \$300,000; gift by unnamed donor, \$1,000,000.

New York State Park, gift by Mrs. E. H. Harriman, \$1,000,000.

New York University, gift by Maria C. Taller, \$25,000.

New York Zoölogical Society, gift by Andrew Carnegie, \$5000; gift by Anthony R. Kuser, \$60,000; gift by various donors, \$50,000.

Nicum, J. C., Rochester, N. Y., will to Muhlenberg College, \$10,000.

Nogel, Emil M., New York, gift to charity, \$54,000.

Northwestern University, gift by James A. Patten, \$10,000; gift of land to Evanston, Ill., \$20,000; (Medical School), gift by James A. Patten, \$200,000.

Oddfellows Grand Lodge, gift by A. W. Sturey, \$200,000.

Ohio Wesleyan University, gift by Mrs. G. D. Selley, \$25,000.

Omaha, Neb., gift for park by Mrs. E. J. Cornish, \$10,000; gift for park by various donors, \$52,180.

Oppman, Theodore, Janesville, Wis., gift to charity, \$26,800.

Pack, Charles L., Lakewood, N. J., gift to Williams College, \$10,000.

Paine, Robert Treat, Boston, Mass., gift to charity, \$10,000; gift to charity, \$15,000.

Paris Relief Fund, gift by J. Pierpont Morgan, \$50,000.

Parker, James A., Norfolk, Va., gift to charity, \$5900.

Parker, James B., Rochester, N. Y., gift to charities, \$25,000.

Parker, Joseph, gift to Yale University, \$10,000.

Parkhurst, Mr. and Mrs. Lewis, Winchester, Mass., gift to Dartmouth College, \$50,000.

Patten, George W., Evanston, Ill., gift to Evanston Hospital, \$500,000.

Patten, James A., Evanston, Ill., gift to Y. M. C. A., \$25,000; gift to Medical School of Northwestern University, \$200,000; gift to Old Peoples' Home, \$75,000; gift to Northwestern University, \$10,000.

Paul, Henry H., New York, will to charity, \$40,000.

Paxson, Mary, Philadelphia, Pa., gift to charity, \$7000.

Payne, M. T., New York, gift to Perkiomen Seminary, \$5000.

Pearsons, D. K., Chicago, Ill., gift to Am. Board of Foreign Missions Commission, \$100,000.

Penfield, Mrs. F. C., Philadelphia, Pa., gift to Perkiomen Seminary, \$5000.

Pennsylvania Coal Company, gift for educational purposes at mines, \$10,000.

Perkins, George T., Akron, Ohio, gift to Y. W. C. A., \$50,000; gift to Mary Day Nursery, \$50,000.

Perkins, G. W., New York, gift to State Park, \$50,000.

Perkins Blind Intitute, gift by David Cummings, \$5000.

Perkiomen Seminary, gift by Mrs. F. C. Penfield, \$5000; gift by M. T. Payne, \$5000; gift by W. I. Meschter, \$5000.

Phelps, Erskine M., Chicago, Ill., gift to charity, \$105,000; gift to church, \$35,000; gift to library, \$20,000.

Philadelphia College of Physicians, gift by unnamed donor, \$75,000.

Phillips, Elizabeth, Washington, Ga., gift to charity, \$8000; gift to church, \$19,000; gift to schools, \$5000.

Phillips Exeter Academy, gift by various donors, \$320,000; gift by Theodore N. Vail, \$35,000.

Phipps, Genevieve C., Denver, Colo., gift to Bellingham Chautauqua Association, \$50,000.

Phipps, Henry, New York, gift to State Park, \$50,000.

Pierce, John H., Lincoln, Mass., gift to charity, \$50,000.

Pietrzycki, Marcel, Walla Walla, Washington, gift for technical school, \$100,000.

Pittsburg Alumni Association, gift to Rensselaer Polytechnic Institute, \$150,000.

Pittsburg Civic Commission, gift by Andrew Carnegie, \$10,000.

Pittsburg Teachers' Association, gift by Andrew Carnegie, \$10,000.

Pittsfield Boys' Club, gift by Tenor Crane, \$10,000.

Plainfield, N. J., gift to church by various donors, \$8000.

Polyclinic Institute, gift by Helen H. Jenks, \$125,000; gift by unnamed donor, \$250,000; gift by various donors, \$123,000.

Pomona College, gift by various donors, \$300,000.

Port Arthur, Texas, gift for university by John W. Gates, \$625,000.

Port Arthur Collegiate Institute, gift by John W. Gates, \$50,000.

Porter, Anna E., Philadelphia, Pa., gift to charity, \$14,000.

Post, C. W., Battle Creek, Michigan, gift for home for widows and orphans, \$400,000; gift of sanitarium to Trades and Workers Association, \$400,000.

Poulsen, N., Copenhagen, gift to Scandinavian American Association, \$100,000.

Pratt, Herbert C., Springfield, Mass., gift to Y. M. C. A., \$10,000.

Presbyterian Church Board, gift by John H. Converse, \$200,000.

Presbyterian Home for Aged Men, gift by unnamed donor, Philadelphia, Pa., \$5000.

Princeton University, gift by Isaac C. Wyman, Salem, Mass., \$4,000,000; gift by W. C. Proctor, \$500,000; gift by various donors, \$571,631; gift by Mrs. Russell Sage, \$150,000; Alumni gift, \$500,000; (Grover Cleveland Memorial) gift by various donors, \$100,000; gift by various donors, \$97,000.

Proctor, W. C., Cincinnati, Ohio, gift to Princeton University, \$500,000.

Rand, Mrs. A. T., Minneapolis, Minn., gift to charity, \$10,000.

Ranken Trade School, gift by David Ranken and Sons, \$3,000,000.

Ranken, David, and Sons, St. Louis, Mo., gift to Ranken Trade School, \$3,000,000.

Ransom, John A., Washington, D. C., gift to church, \$500,000.

Raymond, Evelyn, Baltimore, M. D., gift to hospital, \$6000.

Raymond, F. F., Newton, Mass., gift to Yale University, \$5000; gift to Harvard University, \$5000; gift to Abbott Academy, \$5000; gift to charity, \$5000.

Red Cross, gift by J. Pierpont Morgan, \$100,000; gift by various donors, \$400,000.

Rees, N. J., New York, gift to charity, \$500,000; gift to St. Luke's Hospital, \$500,000.

Rensselaer Polytechnic Institute, gift by Pittsburg Alumni Association, \$150,000.

Reppel, Arthur, gift to Berlin American Institute, \$100,000.

Reuben McMillan Free Library, Youngstown, Ohio, gift by Andrew Carnegie, \$50,000.

Reynolds, Eliza E., Savannah, Ga., gift to church, \$17,000; gift to Mercer University, \$20,000; gift to charity, \$5000.

Rhodes, Henry, Akron, Ohio, gift to church, \$6000.

Rich, James R., Boston, Mass., gift to Harvard College, \$20,000; gift to charity, \$8000.

Richardson, Ida A., New Orleans, La., gift to University of Louisiana, \$20,000; gift to church, \$18,000.

Richardson, Mary A., Worcester, Mass., will to charity, \$20,000; will to Tufts College, \$40,000.

Richmond, Wis., gift of library by Andrew Carnegie, \$10,000.

Riebram, Sarah, Madison, Wis., gift to church, \$11,000; gift to charity, \$5000.

Ripon College, gift by various donors, \$40,000; gift by A. G. Farr, \$8000.

Ritchie, C. D., Philadelphia, gift to University of Pennsylvania, \$60,000.

Rockefeller, J. D., New York, gift to Western Reserve University, \$250,000; additional gift to Rockefeller Institute of Medical Research, \$3,870,000; gift to Y. M. C. A. workers, \$450,000; gift to University of Chicago, \$10,000,000; gift to State Park, \$500,000; gift to Georgia School of Technology, \$50,000; for tuberculosis hospital in Transcaucasia, \$500,000; gift to church, \$162,000; gift to Blue Ridge Association, \$50,000; gift to George Junior Republic, \$7500; gift to Connecticut Wesleyan University, \$100,000; gift to Latin Academy, \$75,000; gift to Y. M. C. A., Cleveland, Ohio, \$100,000; gift to Y. W. C. A., Cleveland, Ohio, \$25,000.

Rockefeller, William, New York, gift to State Park, \$50,000.

Rockefeller Institute of Medical Research, additional gift by John D. Rockefeller, \$3,870,000.

Romeo, Michigan, gift to library by Nancy H. Kezar, \$10,000.

Rush, Margaret, Rockford, Ill., gift to charity, \$5000.

Russell, Horace, gift to Dartmouth College, \$10,000.

Russell Sage Foundation Homes, gifts by Mrs. Russell Sage, \$2,750,000.

Ryerson, Martin, Chicago, Ill., gift to Old People's Home, \$100,000; gift to University of Chicago, \$100,000.

Sage, Mrs. Russell, New York, gift to National Association of Audubon Societies, \$15,500; gift to Princeton University, \$150,000; gift for Russell Sage Foundation Homes, \$2,750,000; gift to hospital, El Paso, Texas, \$25,000; gift to Uvalde County, Texas, Orphan Asylum, \$20,000; gift to Tuberculosis Hospital, Pecos, Texas, \$15,000; gift to Home for Homeless Children, Del Rio, Texas, \$15,000; gift to other Texas charities, \$50,000; gift of land to Yale University, \$650,000; additional gift to Martha Berr School, \$25,000; gift for State Park, \$50,000; gift to State Sunday School Association, \$5000; gift to Vassar College, \$150,000.

St. Louis, Mo. (various donors), gift to charity, \$50,000.

St. Luke's Hospital, gift by Norman J. Rees, \$500,000.

St. Mary's Hospital, gift by various donors, New York, \$15,000.

St. Olaf's College, gift by James J. Hill, \$50,000.

St. Patrick's Cathedral, New York, gift by various donors, \$500,000.

St. Rose's Home, gift by unnamed donor, New York, \$25,000.

St. Thomas College, gift by various donors, \$175,000.

San Bernardino, Cal., gift of park by Mrs. R. F. Dodson, San Bernardino, \$50,000.  
 Sanborn Seminary, gift by unnamed donor, \$15,000.  
 Sandford, C. A., Courtenay, S. D., gift to Jamestown College, \$13,000.  
 Santa Clara University, gift by various donors, \$200,000.  
 Scandinavian American Association, gift by N. Poulsen, \$100,000.  
 Schallenberger, A. C., gift of library at Toulon, Ill., \$11,500.  
 Schiff, Jacob H., New York, gift to Hebrew Sheltering Guardian Society, \$35,000; gift for library, Berlin University, \$25,000; gift for Hebrew education, \$50,000.  
 Schoen, C. F., Philadelphia, Pa., gift to Dickinson College, \$10,000.  
 Schoenberg, Joseph, Cleveland, O., gift to Denver Jewish Hospital \$25,000; gift to charity, \$75,000.  
 Schu, George, Primghar, India, gift to schools, \$10,000.  
 Scollard, Elizabeth, Boston, Mass., gift to charity, \$40,000.  
 Sears, Roebuck & Co., Chicago, gift to Y. M. C. A., \$100,000.  
 Seipp, Alma, Chicago, Ill., gift to German Old People's Home, \$25,000.  
 Seligman, Henrietta, New York, gift to charity, \$8000.  
 Selley, Mrs. G. D., Portsmouth, O., gift to Ohio Wesleyan University, \$25,000.  
 Severance, Louis H., Cleveland, O., gift to Y. M. C. A., \$50,000.  
 Shedd, Mr. and Mrs. J. G., Chicago, Ill., gift of library to Alsted, N. H., \$150,000; gift to Y. M. C. A., \$50,000.  
 Shellenberg, Nathan, Philadelphia, Pa., gift to Jefferson Hospital, \$5000.  
 Shepard, Mrs. T. P., Newport, R. I., gift to charity, \$94,000; gift to church, \$50,000.  
 Sheridan, G. K., New York, gift to charity, \$5000.  
 Shirey, A. W., Montana, Ark., gift to charity, \$50,000.  
 Shonts, Theodore P., New York, gift to Drake University, \$50,000.  
 Shorter College, gift by various donors, Rome, Ga., \$100,000.  
 Shoyer, Samuel E., Philadelphia, Pa., gift to hospital, \$5000.  
 Siegel, Cooper & Co., New York, gift to charity, \$42,000.  
 Silliman, H. B., Cohoes, N. Y., gift to church, \$300,000; gift to Moody Institute, \$200,000; gift to charity, \$200,000.  
 Simmons, B. A., Hartford, Conn., gift to charity, \$7000; gift to Mount Holyoke College, \$5000.  
 Simmons, Charles F., San Antonio, Tex., gift to church, \$700,000.  
 Simpson, John A., Cincinnati, Ohio, gift to Covington Home for Aged Women, \$10,000.  
 Singer, F. W., Milwaukee, Wis., gift to charity, \$20,000.  
 Singer, W. H., Pittsburg, Pa., gift to Newsboys' Home, \$10,000.  
 Slater, Andrew C., Newton, Mass., will to charity, \$15,000; will to church, \$30,000; gift to Meadville Theological Seminary, \$10,000.  
 Sloane, H. T. and W. D., New York, gift to Yale University, \$50,000.

Smith, Charles H., Aurora, Ill., gift to charity, \$5500.  
 Smith, Goldwin, gift to Cornell University, \$689,000.  
 Smith, John E., Norwood, Mass., gift to Tufts College, \$500,000.  
 Smith, J. P., York, Pa., will to library, \$40,000.  
 Smith College, gift by unnamed donor, \$25,000.  
 Smyth, Ellen, Jersey City, N. J., gift to Woodstock College, \$8000.  
 Snellenburg, Samuel, Philadelphia, Pa., gift to church, \$5000.  
 Southern Baptist Theological Seminary, gift by various donors, \$488,000.  
 Southern Female College, gift by Andrew Carnegie, \$6700.  
 Southwestern University, gift by Jesse H. Jones, \$25,000.  
 Southwest Museum, gift by Charles F. Lummis, Los Angeles, Cal., \$150,000.  
 Spalding, Mrs. Keith, Chicago, Ill., gift to Anti-Tuberculosis Institute, \$7000.  
 Sparrow, E. W., Lansing, Mich., gift for hospital, \$100,000.  
 Speyer, James, New York, gift to Berlin American Institute, \$100,000.  
 Sprague, O. S. A., Chicago, gift to Sprague Memorial Institute, \$1,216,000.  
 Sprague Memorial Institute, gift by O. S. A. Sprague, \$1,216,000.  
 Starrett, L. S., Athol, Mass., gift to Y. M. C. A., \$15,000.  
 State Park, New York, gift by John D. Rockefeller, \$500,000; gift by J. Pierpont Morgan, \$500,000; gift by Mrs. Russell Sage, \$50,000; gift by Miss Helen Gould, \$25,000; gift by various donors, \$550,000.  
 State Sunday School Association, N. Y., gift by Smith Ely, \$50,000; gift by Mrs. Russell Sage, \$5000; gift by Mrs. J. S. Kennedy, \$5000.  
 Steell, A. B., Atlanta, Ga., gift to charity, \$5000.  
 Steele, Robert, Philadelphia, Pa., gift to church, \$20,000.  
 Steinhardt, Ignatz, San Francisco, Cal., gift to Golden Gate Park, \$40,000.  
 Stemme, John, New York, will to charity, \$8000.  
 Stephenson, Caroline L. P., Boston, Mass., gift to charity, \$11,964.  
 Stevens, Elizabeth R., Swansea, Mass., gift to Y. M. C. A., \$5000.  
 Stewart, Eli M., Minneapolis, Minn., gift to charity, \$100,000; gift to library, \$50,000.  
 Stillman, Joseph, New York, gift to State Park, \$50,000.  
 Stokes, J. A., New York, gift to Y. M. C. A. workers, \$100,000.  
 Story, D. R., Proctorsville, Vt., gift to charity, \$5000.  
 Stotesburg, S. P., New York, gift to State Park, \$50,000.  
 Stradling, Walter, Philadelphia, will to church, \$10,000.  
 Straus, Nathan, New York, gift to tuberculosis prevention, \$50,000.  
 Sturey, A. W., Minton, Ark., will to Odd-fellows' Grand Lodge, \$200,000.  
 Swarthmore College, gift by A. H. Middleton, \$30,000.

Syracuse University, gift by J. D. Humphrey, \$20,000.

Szechenyi, Gladys Vanderbilt, gift to Budapest Academy of Sciences, \$125,000.

Taber, Augusta, Philadelphia, Pa., gift to charity, \$100,000.

Tainor, Julia D., New York, gift to Bacon Academy, \$5000; gift to church, \$2000.

Talbot, Isabella W., Billerica, Mass., gift to church, \$11,000; gift to charity, \$17,000.

Taller, Maria C., New York, will to New York University, \$25,000.

Thomas, Louise C., New Orleans, La., gift to Marquette University \$50,000.

Thomas, S. O., New Orleans, La., gift to Tulane University, \$60,000.

Thomas College, gift by Andrew Carnegie, \$25,000.

Thorn, J. S., Philadelphia, Pa., gift to charity, \$175,000.

Thorndike, C. P., Salem, Mass., gift to charity, \$980,000.

Thorne, Phoebe A., New York, gift to charity, \$140,000.

Throop Polytechnic Institute, gift by Mrs. R. J. Burdette, \$5000.

Tiefer, William, Philadelphia, Pa., contingent bequest to hospital, \$118,000.

Tignego, John, St. Paul, Minnesota, gift to charity, \$15,000.

Timmerman, G. H., St. Louis, Mo., gift to charity, \$5000.

T. M. Hebrew Association, New Orleans, La., gift by various donors, \$8500.

Tomb, Thomas H., Los Angeles, Cal., gift to church, \$5000.

Trades and Workers Association, gift of sanitarium by C. W. Post, \$400,000.

Transylvania University, gift by R. A. Long, \$30,000.

Trask, Mrs. Spencer, Saratoga Springs, N. Y., gift to town, \$24,500.

Travers, Annie E., Philadelphia, Pa., gift to charity, \$5000.

Tree, Lambert, Chicago, Ill., gift to Columbian University, \$10,000; gift to University of Virginia, \$5000.

Trinity College (N. C.), gift by Benjamin M. Duke, Durham, N. C., \$100,000; gift by Benjamin M. Duke, \$230,000; gift by J. Pierpont Morgan, \$'00,000; gift by various donors, \$20,000.

Tuck, Edward, gift to Dartmouth College, \$500,000.

Tucker, A. Q., gift to Baptist Guild, University of Michigan, \$5000.

Tufts, Sarah E., Boston, Mass., gift to church, \$6000.

Tufts College, gift by J. E. Smith, Norwood, Mass., \$500,000; Mary A. Richardson, \$40,000; David Cummings, \$65,000.

Tulane University, gift by F. W. Collendar, \$65,000; gift by Ida A. Richmond, \$25,000; gift by S. O. Thomas, \$60,000.

Tuskegee Institute, gift by Flora L. Dolger, \$1,000,000.

Truax, Mrs. Peter, Eau Claire, Wis., gift to church, \$5000.

Uncle Remus Fund, gift by Andrew Carnegie, \$5000.

Underwood, Carrie P., St. Johnsbury, Vt., gift to church, \$52,000; gift to charity, \$30,500; gift to schools, \$26,000.

Union Gospel Mission, gift by various donors, St. Paul, Minn., \$61,000.

United States Steel Company, gift to Y. M. C. A., Pittsburg, Pa., \$50,000.

University of California, gift by Theodore Kearney, \$500,000.

University of Chicago, gift by John D. Rockefeller, N. Y., \$10,000,000; gift by Martin A. Ryerson, \$100,000.

University of Louisiana, gift by Ida A. Richardson, \$20,000.

University of Michigan (Baptist Guild), gift by A. Q. Tucker, \$5000; gift by Catharine McGregor, \$13,000.

University of Pennsylvania, gift by C. D. Ritchie, \$60,000; gift by unnamed donor, \$100,000; gift by unnamed donor, \$150,000.

University of the South, gift by J. Pierpont Morgan, \$50,000; gift by Andrew Carnegie, \$60,000.

University of Vermont, gift by various donors, \$500,000; gift by Lewis Coburn, Chicago, \$25,000.

University of Virginia, gift by Lambert Tree, \$5000.

University of Washington, gift by Richard Huncheon, \$50,000.

Vail, Theodore N., New York, gift to Phillips-Exeter Academy, \$35,000.

Vanderbilt, A. G., New York, additional gift to Yale University, \$125,000.

Vanderbilt, F. W., New York, gift to Yale University, \$100,000.

Vanderbilt, W. K., New York, gift to State Park, \$50,000.

Vanderburg, Mary, Jersey City, N. J., gift to charity, \$5000.

Vandolah, Emily, Lexington, Ill., gift to Wesleyan University, \$10,000; gift to library, \$10,000.

Various donors, gift for relief of Minnesota forest fires, \$100,000.

Various donors, Boston, Mass., to Campbellton (N. B.) fire victims, \$5000.

Vassar College, gift by Mrs. Russell Sage, \$150,000; gift by Andrew Carnegie, \$10,000.

Vieto, George F., New York, gift to German Hospital, \$5000.

Vilas, Mrs. Henry, Madison, Wis., gift for park, \$25,000.

Voght, Rose A., St. Louis, Mo., gift to hospital, \$15,000.

Voodry, Anne, Bloomington, Ill., gift to University of Illinois, \$8000.

Voorhees, Mrs., gift to Easton College, \$30,600.

Wade, J. H., Cleveland, O., gift to hospital, \$100,000.

Walsh, Thomas F., Washington, D. C., gift to charity, \$100,000.

Wannamaker, E. Findlay, Ohio, gift to church, \$5000.

Warburg, Felix M., New York, gift to Young Men's Hebrew Association, \$60,000.

Ward, Charles S., New York, gift to charity, \$80,000.

Warner, Ezra T., Chicago, Ill., gift to Middlebury College, \$25,000; gift to charity, \$15,000.

Washington, D. C., gift to missions by various donors, \$65,000; gift for erection of Methodist Temple, by various donors, \$130,000.

Washington University, gift by W. H. Bixby, Adolphus Busch and R. S. Brooking, \$3,000,000.

Watson, Anna M., Mount Holly, N. J., gift to Baptist Inst. and Christian Workers, \$50,000.

Wells College, gift of library by Andrew Carnegie, \$40,000.

Wesleyan College, gift by various donors of Macon, Ga., \$15,000; gift by Emily Vandolah, \$10,000.

Western Reserve University, gift by H. M. Hanna, \$250,000; gift by John D. Rockefeller, \$250,000; gift by H. M. Hanna, \$200,000.

Western Theological Seminary, gift by Joanna W. B. Negley, \$20,000.

West Jersey Homeopathic Hospital, gift by various donors of Camden, N. J., \$60,000.

Weston, Frances E., Boston, Mass., gift to Institute of Technology, \$10,000.

Wharton, Ida M., Omaha, Neb., gift to Y. M. C. A., \$5,000.

Wheaton College, gift by Andrew Carnegie, \$25,000; gift by unnamed donor, \$10,000; gift by various donors, \$65,000.

Wheeler, S. D., New Haven, Conn., gift to tuberculosis sanitarium, \$40,000.

Whipple, G. C., Lebanon, N. H., gift to charity, \$10,000; gift to church, \$11,000; gift to library, \$5,000; gift to Colby Academy, \$3,000.

White, William B., Highland Park, Ill., gift to home for crippled children, \$50,000.

Whitney, Edward, Belmont, Mass., gift to Institute of Technology, \$25,000.

Wiggins, C. L., Pensacola, Fla., gift to charity, \$20,000.

Wilberforce University, gift by Hattie Q. Brown, Xenia, O., \$13,000; conditional gift by Andrew Carnegie, \$17,500.

Willamette University, gift by R. A. Booth, \$100,000.

William Jewell College, gift by various donors, \$500,000.

Williams College, gift by Charles L. Pack, Lakewood, N. J., \$10,000; gift by unnamed donor, \$10,500; gift by Francis E. Curtiss, \$25,000.

Wilson, M. H., Evanston, Ill., gift to Y. M. C. A., \$5,000; gift for small park, \$10,000.

Winnetka, Ill., gift of library by Bross estate, \$30,000.

Winters, John W., Paterson, N. J., will for spiritual temple, \$15,000.

Woerrishaefter, Anna, New York, gift to German Hospital, \$100,000.

Women's Auxiliary, gift to General Convention Episcopal Church, \$242,110.

W. C. T. U., gift by C. M. Botsford, \$10,000.

Woodman, J. W., Washington, D. C., gift to Y. M. C. A. workers, \$35,000.

Woodstock College, gift by Ellen Smyth, \$8,000.

Woodward, J. T., New York, gift to charity, \$27,500; gift to church, \$10,000.

Wooster University, gift by Mrs. J. S. Kennedy, N. Y., \$100,000.

Wormser, David, Chicago, Ill., gift to charity, \$5,000.

Wright, A. W., Alma, Mich., gift to Y. M. C. A., \$5,000; gift to Masonic Home, \$200,000.

W. U. Y. University, gift by Helen H. Jenks, \$100,000.

Wyckoff, Peter, New York, gift to Reformed Church, \$50,000.

Wyman, Isaac C., Salem, Mass., gift to Princeton University, \$4,000,000.

Yale University, gift by Samuel H. Lyman, N. Y., \$700,000; gift by National Lumber Association, \$100,000; gift by Dexter Morton, Boston, \$25,000; gift by unnamed donor, \$15,000; gift by Newton Barney, Farmington, Conn., \$20,000; gift by J. H. Whittemore family, Naugatuck, Conn., \$20,000; gift by Mrs. John Hay, \$5,000; gift by Mrs. E. H. Harriman, \$100,000; gift by S. H. Lyman, \$700,000; gift by F. W. Vanderbilt, \$100,000; gift by Geo. G. and W. S. Mason, \$250,000; gift by Mathias H. Arnot, \$15,000; additional gift by A. G. Vanderbilt, \$100,000; gift by Charles W. Lyman, \$5,000; gift by Mrs. Russell Sage, N. Y., \$850,000; gift by J. Pierpont Morgan, \$100,000; gift by J. B. Collins, \$10,000; gift by unnamed donor, \$10,000; gift by F. F. Raymond, \$5,000; gift by unnamed donor, \$25,000; gift by J. B. Collins, \$50,000; additional gift by A. G. Vanderbilt, \$25,000; gift by Mrs. George Day, \$100,000; gift by Adolph Lewisohn, \$100,000; gift by Joseph Parker, \$10,000; gift by H. T. and W. D. Sloane, \$50,000.

Yerkes, Herman, Bordentown, N. J., gift to charity, \$10,000.  
Y. M. C. A., Adrian, Mich., gift by Nathaniel A. Bryant, \$10,000.  
Y. M. C. A., Alma, Mich., gift by A. W. Wright, \$5,000.  
Y. M. C. A., Asheville, N. C., gift by unnamed donor, \$50,000.  
Y. M. C. A., gift by L. S. Starrett, Athol, Mass., \$15,000.  
Y. M. C. A., Birmingham, Ala., gift by various donors, \$211,000; gift by various donors, \$214,000.  
Y. M. C. A., Borgalusa, La., gift by L. H. Goodyear, \$30,000.  
Y. M. C. A., Buffalo, N. Y., gift by various donors, \$200,000.  
Y. M. C. A., Chicago, Ill., gift by Joseph W. Field, London, \$50,000; by various donors, \$351,438.  
Y. M. C. A., Cleveland, O., gift by various donors, \$430,000; gift by Louis H. Severance, \$50,000; gift by J. D. Rockefeller, \$100,000.  
Y. M. C. A., Colorado Springs, Colo., gift by various donors, \$65,485.  
Y. M. C. A., Erie, Pa., gift by various donors, \$200,000.  
Y. M. C. A., Franklin, Mass., gift by various donors, \$30,767.  
Y. M. C. A., Greensboro, N. C., gift by various donors, \$65,000.  
Y. M. C. A., Janesville, Wis., gift by Levi B. Carle, \$5,000.  
Y. M. C. A., Omaha, Neb., gift by Ida M. Wharton, \$5,000.  
Y. M. C. A., Ottawa, Ill., gift by S. E. King, \$50,000.  
Y. M. C. A., Pittsburg, Pa., gift by United States Steel Company, \$50,000; gift by various donors, \$300,000.  
Y. M. C. A., Reno, Nev., gift by various donors, \$176,000.  
Y. M. C. A., Saginaw, Mich., gift by Thomas Merrill, \$5,000; gift by various donors, \$65,000.  
Y. M. C. A., St. Louis, Mo., gift by various donors, \$400,000.  
Y. M. C. A., San Francisco, Cal., gift by various donors, \$60,000; gift by various donors, \$75,000; gift by various donors, \$54,000.  
Y. M. C. A., Springfield, Mass., gift by Herbert C. Platt, \$10,000.  
Y. M. C. A., Tuscaloosa, Ala., gift by various donors, \$20,000.  
Y. M. C. A., Wheeling, W. Va., gift by various donors, \$50,000.  
Y. M. C. A., gift by Mary B. Deere, \$20,000; gift by H. Ainsworth, \$5,000; gift by various

donors, \$11,000; gift by various donors, \$134,000.

Y. M. C. A., gift by James A. Patten, Evanston, Ill., \$25,000; gift by M. H. Wilson, Evanston, Ill., \$5,000; gift by various donors, Burlington, Ia., \$100,000; gift by various donors, Naperville, Ill., \$52,000.

Y. M. C. A., gift by Elizabeth R. Stevens, Swansea, Mass., \$5,000; gift by Mrs. H. A. Brayton, Fall River, Mass., \$5,000.

Y. M. C. A., gift by Mrs. T. K. Gibbs, Newport, R. I., \$15,000; gift by Wm. A. Clark, Los Angeles, Cal., \$150,000.

Y. M. C. A., gift by various donors, Evanston, Ill., \$90,000.

Y. M. C. A., gift by various donors, Burlington, Ia., \$30,000.

Y. M. C. A. workers, gift by John D. Rockefeller, \$450,000; gift by J. W. Woodman, \$35,000; gift by J. A. Stokes, \$100,000; gift by various donors, \$415,000; gift by various donors, Waukegan, Ill., \$35,000.

Young Men's Hebrew Association, gift by Felix M. Warburg, \$60,000.

Y. W. C. A., gift by Geo. H. Higbee, Burlington, Ia., \$30,000.

Y. W. C. A., gift by Mrs. Dorman, N. Y., \$10,000.

Y. W. C. A., St. Louis, Mo., gift by James G. Butler, \$50,000.

Y. W. C. A., Jackson, Mich., gift by various donors, \$45,000.

Y. W. C. A., Cleveland, O., gift by J. D. Rockefeller, \$25,000; gift by various donors, \$75,000.

Zabriskie, Mrs. H. T., Newport, R. I., gift to church, \$17,000; gift to charity, \$10,000.

**GILCHRIST, B. B.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**GILDER, RICHARD WATSON.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**GILBERT, CHARLES.** A French opera singer, died October 11, 1910. He was born in Paris in 1866 and studied at the Conservatoire in 1886, where he took the first prize in opéra comique and second prize in singing and grand opera. He went for one year to the Opéra Comique and was then called to the Théâtre de la Monnaie, where he remained until 1900, when he came to the Metropolitan Opera House in New York City. He appeared here in *Romeo and Juliet*, *La Bohème* and other operas. In the following season he made an emphatic success as the old soldier "Sulpice" in the revival of *The Daughter of the Regiment*. After the retirement of Maurice Grau as manager of the Metropolitan Opera House, Gilbert was not re-engaged. He sang, however, at the Manhattan Opera House and continued as one of the most popular artists at that institution until its close. M. Gilbert was not notable for any great volume or beauty of voice, but he was an extremely skillful actor and possessed in a high degree the beauty of diction and phrasing characteristic of the French school. His most successful achievement at the Manhattan Opera House was the part of the "Father" in *Louise*. He appeared also with success as "Prior" in *Le Jongleur de Notre Dame* and as the "Sacristan" in *Tosca*. M. Gilbert was perhaps the most popular among the male singers at the Manhattan Opera House.

**GILLETTE, WILLIAM.** See DRAMA.

**GILLIAT, E.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**GIN.** See LIQUORS.

**GIPSY MOTH.** See ENTOMOLOGY.

**GLACIER NATIONAL PARK.** See GAME LAWS, 1910.

**GLACIERS.** See GEOLOGY.

**GLADSTONE, HERBERT.** See SOUTH AFRICAN UNION.

**GLADSTONE, WILLIAM EWART.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**GLUCINUM.** See ATOMIC WEIGHTS.

**GOATS.** See STOCK RAISING.

**GODOY, J. F.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**GOESSMANN, CHARLES ANTHONY.** An American chemist and educator, died September 1, 1910. He was born at Naumburg, Germany, in 1827, and was educated at the University of Göttingen, where he was assistant in the chemical laboratory from 1853 to 1857. In the latter year he removed to the United States. From 1857 to 1861 he was chemist and manager of a sugar refinery in Philadelphia and from 1862 to 1869 he was chemist of a salt company. He was appointed professor of chemistry at Rensselaer Polytechnic Institute in 1866 and remained in that position until 1869. In the following year he became professor of chemistry at the Massachusetts Agricultural College and remained in that position until the time of his death. From 1873 he was chemist of the Massachusetts State Board of Agriculture, and from 1886 was analyst of the Massachusetts State Board of Health. From 1892 to 1894 he was director of the Massachusetts Agricultural Experiment Station. In 1899 he was sent as honorary representative of the Department of Agriculture to study certain scientific matters in Germany, France and other European countries. His conclusions on the practical value of sorghum as a source of sugar and the feasibility of beet sugar production was a starting point for later studies in that line. He was the author of many reports, monographs and papers on chemical subjects, and was a member of several chemical societies.

**GOETHALS, Col. G. W.** See PANAMA CANAL.

**GOETHE.** See GERMAN LITERATURE.

**GOLD.** The gold production of the world in 1910, according to the preliminary estimates made by the United States Director of the Mint, shows a slight increase over the production of 1909. This will be seen from the table given on next page which shows the production of gold by countries.

It will be seen from this table that Australasia, which has been on the declining scale in the production of gold since 1903, when the value of its output was officially estimated at \$89,210,100, falls to \$71,007,900 in the final estimate for 1909 and to \$65,602,600 in the preliminary estimate for 1910. As a result of this loss and a falling off in the United States, together with the fact that South America has not maintained the rate of increase of recent years, the world's production in 1910 was but slightly greater than in 1909. Present conditions in the principal gold mining countries do not promise any increase in the production at the rate of the last decade. The great gain of the last ten years has been in South Africa, and while further increase may be expected there, the scarcity of labor and other difficulties will make the rate of increase comparatively less, while elsewhere production is scarcely hold-

Country	Gold.	
	Final 1909	Preliminary 1910
United States .....	\$ 99,673,400	\$ 96,055,200
Canada .....	9,790,000	10,000,000
Mexico .....	23,842,900	24,073,100
Africa .....	170,988,600	175,000,000
Australasia .....	71,007,900	65,602,600
Russia .....	32,381,300	34,000,000
Austria-Hungary .....	1,942,000	1,942,000
Germany .....	69,200	70,300
Norway .....	.....	.....
Sweden .....	10,100	18,700
Italy .....	24,200	17,300
Spain .....	2,900	3,200
Greece .....	.....	.....
Turkey .....	2,200	6,000
France .....	1,147,400	1,114,700
Great Britain .....	59,200	64,400
Servia .....	150,300	150,300
So America .....	11,233,700	11,346,100
Central America .....	2,630,100	2,713,700
Japan .....	3,786,900	4,448,200
China .....	9,352,100	10,102,300
Indo China .....	65,800	72,400
Korea .....	1,993,600	1,993,600
Siam .....	327,600	327,600
India .....	10,358,600	12,089,500
British East Indies .....	1,436,900	1,448,700
Dutch East Indies .....	2,146,400	2,214,100
Total .....	\$454,422,900	\$454,874,000

ing its own. When the natural expansion of industry, commerce and wealth is considered, the fears of an embarrassing supply of gold which are often voiced may be dismissed. According to the *Engineering and Mining Journal* the year 1910 did not witness the opening or development of any important new producing gold mines except in Russia, where the new mines in the Lena Basin and in the Amur region made a notable gain. Russia shows the only large increase in the production for the year. The Transvaal had the smallest gain for years. The production of the United States decreased, as did Australasia as noted above, while other countries had only slight changes.

The value of the production of gold in the United States in 1910 fell below that of the record output of 1909, which was nearly \$100,000,000. Statistics compiled by the Director of the Mint indicate that in 1910 the total production of gold in the United States, including Alaska and the insular possessions, was \$96,055,214, a decrease of \$3,618,186 from the value of the output in 1909. Notwithstanding this increase which was mainly due to reduced production in Alaska, Colorado and South Dakota, the decrease of the two latter having been due to merely temporary suspension of production in important camps, the gold mining industry was, on the whole, during most of the year progressive and in a satisfactory condition. There were important increases in production in California, Nevada and Arizona, and smaller increases for New Mexico, North Carolina, South Carolina, Utah and Washington. There was a decreased output in Alaska, where the production from the Fairbanks and Seward Peninsula gravels has finally begun to decline. There was a decrease also in Colorado, but operations in Cripple Creek mines until near the end of the year were somewhat less active pending a completion of deep drainage by the Roosevelt tunnel. In South Dakota the great Homestake and other mines and mills made less than their normal output, owing to labor difficulties in the early part of the year. Reduced production from Alaska foreshadows a probable continued decrease in 1911, but this reduction may, to a

considerable extent, be offset by production from new placer fields in Alaska and by increased activity in working auriferous lodes. With a prospect of further increase in production in Nevada and continued good results in California gold dredging, resumption of production at their full capacity at the mines of Cripple Creek and at the Black Hills, and with normal conditions elsewhere, the outlook for 1911 is good. The following table shows the production of gold by States and Territories in 1910-11:

State or Territory	United States. Gold.	
	Final 1909	Preliminary 1910
Alabama .....	\$ 29,200	\$ 29,413
Alaska .....	20,339,500	16,987,990
Arizona .....	2,626,800	3,375,256
California .....	20,703,600	21,146,150
Colorado .....	21,845,600	20,408,641
Georgia .....	43,400	25,488
Idaho .....	1,344,200	992,930
Illinois .....	.....	.....
Michigan .....	.....	.....
Missouri .....	200	.....
Montana .....	3,750,100	3,465,364
Nevada .....	16,386,200	17,941,643
New Hampshire .....	.....	599
New Mexico .....	252,800	397,974
North Carolina .....	31,400	54,884
Oregon .....	829,000	631,173
Pennsylvania .....	6,200	2,419
Philippine Islands .....	247,600	90,357
Porto Rico .....	600	1,013
Kansas .....	.....	11,163
South Carolina .....	7,400	31,566
South Dakota .....	6,573,600	5,183,070
Tennessee .....	4,300	3,514
Texas .....	400	475
Utah .....	4,213,300	4,243,907
Virginia .....	4,000	558
Washington .....	429,000	711,359
Wyoming .....	3,900	3,990
Oklahoma .....	.....	15,090
Miscellaneous .....	.....	299,225
Total .....	\$ 99,673,400	\$ 96,055,214

It will be seen from this that California resumes first place among the States, which she lost to Colorado in 1897. The latter gained it by the development of the Cripple Creek district and California regains it by the growth of dredging operations. See ATOMIC WEIGHTS.

**GOLD COAST.** A British crown colony and protectorate on the west coast of Africa. Total area (colony, Ashanti, and protectorate), about 82,000 square miles. Population (1906), 1,696,965 (colony, 895,350), Europeans (estimated 1908), 1768. The natives are largely pagan. Accra, the capital, has 17,892 inhabitants. There are 9 government and 138 mission schools; total enrollment (1908), 14,889; government grant, £5921. Palm oil, palm kernels, cacao, rubber and valuable woods are exported. Gold output (1908), 218,762 ounces (£929,270). Statistics for two years are seen below in pounds sterling.

	Imports.	Exports.	Revenue.	Expen.
1907....	£2,366,195	£2,641,674	£703,718	£602,124
1908....	2,029,447	2,525,171	752,142	667,292

Imports of cottons (1908), £441,731; spirits, £138,571; machinery, £149,078; provisions, £100,013. Exports of rubber, £168,144; palm oil, £129,535; palm kernels, £77,821; gold, £1,151,944; lumber, £158,306; cacao, £540,821. Revenue from customs, £489,986. Debt (December 31, 1908), £2,207,164. Tonnage

entered and cleared (1908), 2,215,735 (British, 1,532,478). There are 168 miles of railway open, and 60 under construction. Telegraph lines, 1348 miles. The governor, Sir John Pickersgill Rodger, died September 12, 1910; and James Jameson Thorburn was appointed his successor. ASHANTI has its own laws and ordinances. Its chief town, Kumasi, has 7000 inhabitants. Gold output (1908), 62,489 ounces (£265,468). Revenue, £27,909; expenditure, £98,580. The NORTHERN TERRITORIES are administered under the governor by a chief commissioner, with headquarters at Tamale (area of Northern Territories, between 38,000 and 50,000 square miles; population, probably about 1,000,000; revenue (1908), £10,939; expenditure, £50,262).

Accra had bubonic plague in 1908, and on May 14, 1910, Sekondi, one of the three principal seaports, was declared by the governor of the colony to be infected with yellow fever. The Gold Coast government plans to spend large amounts on a water supply for Accra and other towns. At present the Europeans and better-class natives at Accra, Sekondi, Cape Coast Castle, and Axim depend upon water tanks, while the bulk of the people rely upon wells, shallow ponds, and stagnant streams for their supply.

**GOLD COINAGE.** See UNITED STATES, *Coinage*.

**GOLD FROM SEA WATER.** See CHEMISTRY.

**GOLF.** The national amateur championship tournament was held at Brookline, Mass., in September and was won by William C. Fownes, Jr., of Pittsburg, who defeated W. K. Wood of Chicago 4 up and 3 to play in the final round. Fownes had the most trouble in the semi-final round when he eliminated C. W. Evans, Jr., the winner of the Western open championship. R. A. Gardner, who carried off the laurels in 1909 failed to qualify. Miss Dorothy Campbell formerly of Scotland, won the women's national golf championship, for the second year in succession, over the Homewood Country Club course near Chicago. The runner-up was Mrs. S. M. Martin, an American woman who represented the Tavistock Golf Club of England. The sixteenth annual championship tournament of the United States Association took place over the course of the Philadelphia Cricket Club, the winner being Alexander Smith. There was a triple tie at 298 between A. Smith, J. J. McDermott and McDonald Smith, the first-named winning the play-off. The excellent showing made by C. W. Evans, Jr., in winning the Western open championship, a feat never before accomplished by an amateur, placed him on a par with Fownes as a player. W. Anderson, who won this event in 1909, died during the year. John Ball won the amateur golf championship of Great Britain and James Braid the open championship. The championship of Wales went to G. Renwick, Jr., and the Irish open championship to L. O. Munn.

The Intercollegiate Golf Association team championship for the third year in succession was won by Yale, whose team defeated Princeton by a score of 7 to 2 over the Essex County Club course at Boston. The individual winner was R. E. Hunter of Yale who defeated F. C. Davidson of Harvard by 1 up.

**GOMEZ, JOSÉ MIGUEL.** See CUBA.

**GOMPERS, SAMUEL.** See LITERATURE, ENG-

LISH AND AMERICAN, *Political and Social Science*.

**GONDRA, MANUEL.** President of the Republic of Paraguay, inaugurated November 3, 1910. He was born in 1872 and was educated at the National College of Paraguay, where he later became one of the professors. He is one of the leading educators of the republic and has devoted many years to study and research in political government, as well as writing several valuable treatises on this subject. He has been Minister to Brazil, representative to the three Pan-American conferences and Minister of Foreign Relations.

**GONNARD, P.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**GOODWIN, CHARLES A.** See CONNECTICUT, *Politics and Government*.

**GOODYEAR, ELLSWORTH D. S.** An American soldier and inventor, died September 3, 1910. He was born in North Haven, Conn., in 1827. In 1846 he went to New York and began work in the rubber trade with the Goodyear family, who were manufacturing India rubber articles in Newark, N. J. He remained there until the outbreak of the Civil War, participating in many of the experiments which led to discoveries that have made the name of Goodyear famous. He invented and patented for himself a process for making hollow rubber goods, all rubber balls and like substances having been made of solid rubber until that time. Upon the outbreak of the Civil War he recruited a company of the 10th Connecticut Volunteers and served as its captain for three years. He then returned home, but soon returned to his old regiment, being mustered into service as major. He was promoted to be lieutenant-colonel and was in command of his regiment on General Grant's line of battle before Petersburg, Va. He led the assault on Ft. Gregg April 2, 1865, and succeeded in holding the position gained by his regiment, although 118 men and eight officers of the 190 men and thirteen officers of his regiment were killed or wounded. He was brevetted colonel for meritorious service and brigadier-general for special gallantry in the assault on Ft. Gregg. From 1868 to 1884 he was United States custom house inspector in New Haven. He served in the Connecticut legislature in 1867.

**GORDON-BENNETT CUP.** COMPETITIONS FOR, FOR AEROPLANES AND BALLOONS. See AERONAUTICS.

**GOBE, Senator.** See OKLAHOMA.

**GOUCHER COLLEGE,** formerly the Woman's College of Baltimore. An institution for the higher education of women at Baltimore, Md., founded in 1884. The change in the name of this college was made by order of the Board of Trustees and under an act of the General Assembly of Maryland, March 31, 1910. The reasons leading to this change were, that since the origin of the institution many other institutions quite different in actual operation have arisen that have assumed the name of Woman's College. The proximity of several such to this institution caused confusion because of similarity in names. The name selected was in recognition of J. F. and Mary Cecilia Goucher, founders of the institution and patrons of the higher education of women. The college has but one department, the academic, and there were enrolled in this in the year 1909-10, 367 students. The faculty numbered 34. The income

of the college during the year was \$129,127 and the amount of the endowment fund was about \$300,000. The college is one of the few that does distinctively college work, not complicated by special courses or extra charges.

**GOULD, G. M.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**GOVERNMENT.** See paragraphs on the subject in articles on countries and on States of the United States.

**GOVERNMENT BY COMMISSION.** See MUNICIPAL GOVERNMENT and INITIATIVE AND REFERENDUM.

**GOVERNMENT, MUNICIPAL.** See MUNICIPAL GOVERNMENT.

**GOVERNORS, HOUSE OF.** See HOUSE OF GOVERNORS.

**GOVERNORS, STATE AND TERRITORIAL.** See articles on States and Territories, paragraph *State Officers*, and articles on Colonies.

**GRADUATE SCHOOL OF AGRICULTURE.** See AGRICULTURAL EDUCATION.

**GRAFT PROSECUTIONS.** See CALIFORNIA; NEW YORK; OHIO, and PENNSYLVANIA.

**GRAHAM, GEORGE P.** See CANADA, *Government and History*.

**GRAHAM, ROBERT.** An American publicist and philanthropist, died March 8, 1910. He was born in England in 1882 and graduated from the University of Durham. After his graduation he became secretary of the Church of England Temperance Society of the Northern Provinces. In 1880 he removed to the United States where he founded the Church Temperance Society of America, and it was through his efforts that the first high license bill, introduced into the New York legislature by Theodore Roosevelt, became a law.

**GRAND PRIZE RACE.** See AUTOMOBILES.

**GRAND TRUNK PACIFIC RAILROAD.** See RAILWAYS.

**GRAND TRUNK RAILROAD STRIKE.** See RAILWAYS.

**GRANT, HUGH JOHN.** An American public official and capitalist, died November 3, 1910. He was born in New York City in 1858 and was educated in Berlin and at St. Francis Xavier College, New York. He studied law at the Columbia Law School and began the practice of law. As a partner of others and in his own law office he built up a large practice. In 1883 he was elected alderman as a Tammany candidate and was re-elected in the following year. At this time great frauds in the granting of street railway franchises by the Board of Aldermen developed and Grant took an active stand against the perpetration of these frauds. He thus became well known to the citizens and in 1884 was selected by Tammany Hall as a candidate for mayor against William R. Grace. He was defeated, but as a reward for his fight against Grace he was appointed sheriff of the county. In 1888 he was elected mayor over Abram S. Hewitt, of the county Democracy, and Joel B. Erhardt, Republican. He was re-elected in 1890, defeating Francis M. Scott, the Fusion candidate. During his service as mayor Mr. Grant was instrumental in compelling the telegraph and telephone companies to take down their overhead wires and place them in subways. When the companies refused to do this he went out with gangs of laborers and chopped down the poles and tore down the wires. He was the candidate again for mayor in 1894 in opposition to William L. Strong, but was de-

feated. After this defeat he practically retired from city politics. He had large business interests and was one of the best known figures in the financial life of the city. He contributed largely to charitable causes.

**GRANT, S. HASTINGS.** An American librarian and author, died May 9, 1910. He was born in 1823 at Marshall, N. Y., and graduated from Princeton College in 1847. He was for seventeen years librarian of the Mercantile Library in New York City, and for twelve years was superintendent of the New York Produce Exchange. He resigned that position to become secretary to Mayor Edson of New York City, by whom he was appointed comptroller of the city in 1883. At the expiration of his term he was for two years vice-president of the United States National Bank. While librarian of the Mercantile Library, he with D. C. Gilman and one or two others organized the first librarians' convention, of which he was the secretary. He was at various times recording and corresponding secretary and vice-president of the New York Bible Society, and was a trustee of the New York Genealogical and Geographical Society. He compiled *New York City during the American Revolution*, was a contributor to the *Historical Magazine* and was one of the founders of the *Genealogical and Geographical Record*. He was for twenty-five years a deacon and for five years an elder in the Madison Square Presbyterian Church, New York City.

**GRAPHITE.** See MINERAL PRODUCTION.

**GRAVES, C. H.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**GRAVING DOCKS.** See DOCKS AND HARBOURS.

**GREAT BRITAIN.** The United Kingdom of Great Britain and Ireland is a constitutional monarchy. Capital, London.

**AREA AND POPULATION.** The total area is 121,391 square miles. The estimated population of the three divisions June 30, 1910, was: England and Wales, 36,169,150; Scotland, 4,921,251; Ireland, 4,371,163; total, 45,469,564. These figures do not include the army, navy, or merchant seamen abroad. The area and population by divisions (in 1891 and 1901 (census of Apr. 1) are shown in the following table:

	Sq. mi	Pop. 1891	Pop. 1901
England and Wales.	58,324	29,002,525	32,527,843
Scotland.....	30,405	4,025,647	4,472,103
Ireland.....	32,360	4,704,750	4,458,775
	121,089	37,732,922	41,458,721
Isle of Man.....	227	55,608	54,752
Channel Islands....	75	92,234	95,618
Army, Navy and merchant seamen abroad.....		224,211	367,736
	121,391	38,104,975	41,976,827

The population of Wales in 1881 was 1,306,513; in 1891, 1,519,035. The decline of population in Ireland reflects the deplorable economic conditions which have obtained in that island; from the maximum of 8,175,124 in 1841, the number has continuously decreased to the estimated 4,371,163 of 1910. It is of interest to note that in 1841 Scotland had 2,620,184 inhabitants and England and Wales 15,914,148.

The following table shows the rate, per thousand of the population, of births (b), deaths (d) and marriages, i. e. persons married (m), for four years:

	E & W.	Scot.	Ir.	U. K.
(b) 1895 .....	30.3	30.0	23.3	29.4
(b) 1900 .....	28.7	29.6	22.7	28.2
(b) 1905 .....	27.2	28.1	23.4	26.9
(b) 1909 .....	25.6	26.4	23.5	25.5
(d) 1895 .....	18.7	19.4	18.5	18.7
(d) 1900 .....	18.2	18.5	19.6	18.4
(d) 1905 .....	15.2	15.9	17.1	15.5
(d) 1909 .....	14.5	15.3	17.2	14.8
(m) 1895 .....	15.0	13.5	10.1	14.3
(m) 1900 .....	16.0	14.6	9.5	15.1
(m) 1905 .....	15.3	13.4	10.5	14.6
(m) 1909 .....	14.6	12.3	10.4	13.9

Immigration and emigration in 1908 and 1909 (exclusive of passengers from or to Europe) were as follows:

	British.	For'gn's.	Total.	U. S.
Im., 1908.....	172,043	170,879	342,922	65,418
Im., 1909.....	149,068	112,257	261,325	53,323
Em., 1908.....	263,199	123,212	386,411	99,669
Em., 1909.....	288,761	185,617	474,378	109,700

The last column shows the number of British passengers from and to the United States; corresponding figures for British North America are: Immigration 1908 and 1909, 39,866 and 33,509 respectively; emigration, 81,321 and 85,887. Of the British and Irish emigrants in 1909, about 65 per cent. were English and 1909, about 65 per cent. were English and Welsh, 19 per cent. Scotch, and 16 per cent. Irish.

Estimated population of larger cities at middle of 1909: London, 4,833,938 ("Greater London," 7,429,740); Glasgow, 872,021; Liverpool, 760,357; Manchester, 655,435; Birmingham, 563,629; Leeds, 484,012; Sheffield, 470,958; Dublin (with suburbs), 398,356; Belfast, 386,576; Bristol, 377,642; Edinburgh, 355,366; West Ham, 321,767; Bradford, 293,983; Newcastle-on-Tyne, 281,584; Hull, 275,552; Nottingham, 263,443.

EDUCATION. Elementary instruction is compulsory in England, and Wales, and illiteracy has declined remarkably. In England and Wales on July 31, 1909, there were in the public elementary schools accommodations for 7,117,941 pupils. At the end of the school year these schools reported 32,065 departments, with 38,571 men teachers and 120,615 women teachers, and an enrollment of 3,041,699 boys and 2,983,564 girls. The average attendance was 88.98 per cent. There were 44 higher elementary schools, Dec. 31, 1909, with 521 teachers, an average enrollment for the year of 10,821, and 90.4 per cent. average attendance. There are many special elementary schools for the blind, deaf, etc. For public secondary education, there were at the end of 1909 912 schools, with 80,923 boys and 69,871 girls enrolled. Other public schools (July 31, 1909): Evening schools and classes, 7202, with 351,285 male and 244,649 female students; day technical classes, 103, with 9650 students; technical institutions, 42, with 3010 students; 46 art classes, with 2642 students; 225 schools of art, with 42,112 students. Teachers are trained at pupil-teacher centres, training classes, and hostels. The public schools here treated are not to be confounded with the many private institutions commonly known as "public schools," where pupils receive instruction at their own expense.

In Scotland, for the year ended August 31, 1909, there were 3149 public primary schools,

with accommodations for 1,015,806 pupils, 803,820 pupils enrolled, and 705,126 in average attendance; 182 higher grade public schools, with an enrollment of 22,403 and average attendance 22,118; 939 evening schools, with 87,599 enrolled and 47,002 average attendance; 756 continuation classes, with 108,813 students. Teachers in elementary (day and higher grade) schools numbered 5225 men and 13,856 women, not including 165 male and 642 female pupil teachers. Secondary public schools, 57, with 19,391 pupils enrolled (12,019 boys, 8885 girls) and an average attendance of 19,391. Students at training colleges and centres, 2991.

In Ireland, December 31, 1909, there were 8401 public primary schools, with accommodations for 760,871 pupils, 679,235 enrolled, and 501,907 in average attendance; teachers, 12,842 (5387 men). In 1909 there were seven training colleges, with 1194 students.

In the year ended Mar 31, 1908, the total payments for public elementary education in England and Wales amounted to £21,987,004 (£11,104,305 Parliamentary grant, £10,467,804 local rates), against £21,223,183 in the preceding year. In Scotland, the expenditure from Parliamentary grants was £2,001,264 in the year ended March 31, 1909, and £2,129,781 in the following year. In Ireland, the amount expended from grants and rates by the Commissioners of National Education was £1,624,490 in 1908-9 and £1,688,649 in 1909-10.

The number of students at the universities in 1908 is stated as follows: In 1908, London, 1370; Aberdeen, about 1300; St. Andrews (1909), 310; Victoria University, Manchester, 1587; Durham, 2034 (including 1100 evening students); Liverpool, 1105 (not including 1100 in affiliated schools); Bristol, 987; Birmingham, about 975; Sheffield, 2186 (including 1390 evening students); Leeds, 1115; Wales, about 1540. In 1910: Oxford 3826; Cambridge, 3726; Edinburgh, 3322; Glasgow, 3728; Dublin, about 1500.

PAUPERISM. The mean number of paupers, and the ratio per 1000 of estimated population, relieved on Jan. 1 and on July 1 preceding (exclusive of casual paupers and insane) are as follows, for England and Wales:

	In-door		Out-door		Total	
	Mean	Ratio	Mean	Ratio	Mean	Ratio
1900 ..	188,423	5.9	500,214	15.8	688,505	21.7
1905 ..	222,217	6.6	542,891	16.1	764,589	22.6
1909 ..	248,516	7.0	546,302	15.5	793,851	22.5
1910 ..	256,523	7.2	534,933	15.0	790,496	22.1
Adults, Able-bodied.						
1900 ..	34,387	1.1	59,288	2.3	93,655	3.0
1905 ..	43,987	1.3	72,379	1.9	116,366	3.4
1909 ..	50,420	1.4	71,742	2.0	122,162	3.4
1910 ..	53,797	1.5	72,832	2.0	126,629	3.5

In above table, for paupers receiving both in-door and out-door relief deductions are made from total. The number of poor of all classes in receipt of relief in parishes in Scotland on January 1, 1909, was 76,659 paupers and 40,028 dependents; on January 1, 1910, 75,628 and 40,955. The number of paupers in receipt of relief in unions in Ireland at the close of the first week in January, 1909, was 102,066 (5129 adult able-bodied); 1910, 99,002 (2354 adult able-bodied).

AGRICULTURE. Including rivers and lakes, but not including foreshore and tidal waters,

the area of the United Kingdom is 77,716,992 acres, of which England includes 32,578,178 acres, Scotland 19,472,515, Wales 4,749,301, Ireland 20,731,244, Isle of Man 145,325, and the Channel Islands 40,429. The total cultivated area in acres (in the first week of June) in Great Britain, in Ireland, and in the United Kingdom, including Man and the Channel Islands, has been as follows:

	Gr. Brit.	Ireland	U. K.
1895 .....	32 577,513	15,179,382	47,883,797
1900 .....	32,437,386	15,234,693	47,795,120
1905 .....	32,286,832	15,262,949	47,673,115
1908 .....	32,211,386	14,665,300	47,001,961
1909 .....	32,183,073	14,580,142	46,888,403

The general decrease of the cultivated area for many years is the occasion of considerable concern. There has been practically no decrease in Scotland, but in England the acreage under crop has grown smaller from year to year, coincident with the extension of public instruction and the development of great manufacturing industries.

The following table shows the area in acres under the principal crops in the first week of June, 1909:

	Gr. Brit.	Ireland	U. K.
Wheat .....	1,823,498	43,606	1,868,385
Barley .....	1,664,386	163,100	1,829,933
Oats .....	2,981,877	1,035,735	4,038,425
Rye .....	55,566	7,464	63,150
Beans .....	313,864	1,626	315,607
Peas .....	183,910	264	184,298
Total corn crops..	7,023,101	1,251,795	8,299,798
Potatoes.....	575,461	579,799	1,167,084
Turnips and swedes	1 555,548	276,944	1,840,602
Mangold.....	456,490	73,437	530,930
Cabbage, kohlrabi, and rape.....	172,031	42,383	215,064
Vetches or tares..	136,245	1,849	138,386
Other crops.....	188,126	27,259	217,421
Total green crops .	3,083,901	1,001,671	4,109,487
Clover, grass, etc., For hay .....	2 035,773	830,998	2,879,297
Not for hay ...	2,178,802	1,495,594	3,708,352
Total cultivated ..	4,214,575	2,326,592	6,587,649
Permanent grass For hay .....	4,777,388	1,447,540	6,231,341
Not for hay .....	12,675,017	8,501,851	21,199,654
Total uncultivated	17,452,405	9,949,391	27,430,995
Flax.....	295	38,110	38,405
Hops.....	32,539	.....	32,539
Grand total, with other crops, fruit, and fallow .....	32,183,073	14,580,142	46,888,403

The production of the principal crops in imperial bushels, long tons, and cwts., and the average yield per acre, are stated as follows for 1909:

	Great Britain.		Ireland.	
	Production	Per ac.	Production	Per ac.
	Bu.	Bu.	Bu.	Bu.
Wheat .....	61,442,375	33.69	1,754,321	40.23
Barley .....	60,938,561	36.61	8,006,192	49.09
Oats .....	123,025,577	41.26	55,711,393	53.79
Beans .....	8,937,439	28.66	72,399	44.53
Peas .....	4,400,934	25.89	8,098	30.67
	Tons.	Tons	Tons	Tons
Potatoes.....	3,674,453	6.39	3,202,819	5.52
Turnips & swedes	25,123,550	16.15	4,970,039	17.95
Mangold .....	9,570,604	20.97	1,442,157	19.64
Cultiv. hay.....	2,936,091	1.44	1,473,807	1.77
Uncultiv. hay ...	5,432,360	1.14	3,102,370	2.14
	Cwts.	Cwts.	Cwts.	Cwts.
Hops.....	214,484	6.59	.....	.....

The total cultivated area in acres and the area under the leading crops, except grass, etc., in England, Scotland, and Wales were as follows in 1909:

	Eng.	Scot.	Wales.
Total.....	25,540,985*	4,859,609	2,782,479
Wheat .....	1,734,236	49,679	39,583
Barley .....	1,379,133	199,981	85,272
Oats .....	1,839,912	943,437	198,528
Rye.....	49,254	.....	529
Beans.....	302,653	.....	1,376
Peas.....	182,209	.....	714
Potatoes.....	405,529	142,938	26,994
Turnips, etc. ...	1,056,823	440,506	58,219
Mangold.....	442,910	.....	11,136
Hops.....	32,539	.....	.....

\* Of which 21,488,862 were occupied by tenants.

The following areas are stated for the principal crops in Great Britain (England, Scotland, and Wales) in June, 1910: Wheat, 1,808,858 acres; barley, 1,728,685; oats, 3,020,966; beans, 267,378; peas, 153,049; potatoes, 539,684; turnips and swedes, 1,565,345; mangold, 442,779; cultivated grasses, clover, etc., for hay, 2,074,579; permanent grass for hay, 5,004,444.

Livestock in the first week of June, 1909 (the figures for horses include only those used for agriculture, brood mares, and unbroken horses):

	Gr. Brit.	Ireland.	U. K.*
Horses .....	1,552,993	528,806	2,091,743
Cattle .....	7,020,982	4,699,564	11,761,830
Sheep .....	27,618,419	4,133,358	31,839,799
Swine .....	2,380,887	1,149,179	3,543,331

\* Including Isle of Man and the Channel Islands.

Figures for Great Britain were distributed as follows:

	Eng.	Scot.	Wales.
Horses .....	1,187,870	204,490	160,633
Cattle .....	5,100,145	1,176,165	744,672
Sheep .....	16,494,812	7,328,265	3,795,342
Swine .....	2,046,284	129,819	204,784

**MINING AND METALS.** The following table shows the quantity and the spot value of the coal and the principal metal products of the United Kingdom:

	1900	1907	1908
Coal, tons..	225,181,300	267,830,962	261,528,795
£	121,652,596	120,527,378	116,598,848
Pig iron, Br.*	4,666,942	5,126,949	4,847,448
£...	19,596,910	19,004,413	15,362,946
Pig iron, Fn.†	4,292,749	4,987,333	4,209,403
£...	18,025,639	18,486,886	13,340,799
Pine copper, tons	766	666	579
£...	59,995	62,673	36,935
Metallic lead, tons	24,364	24,460	20,999
£...	418,960	479,722	288,124
White tin, tons	4,268	4,407	5,052
£...	587,869	769,438	676,258
Zinc, tons...	9,066	7,600	5,832
£...	188,573	186,612	122,739
Silver, ozs...	190,850	153,684	135,268
£...	22,465	19,331	13,739
Bar gold, ozs.	14,004	1,911	915
£...	52,147	6,228	3,311

\* From British ores. † From foreign ores.

In 1895 the coal output was 189,661,362 tons, valued at £57,231,213; the output increased to 230,334,469 tons in 1903, valued at £88,227,547,

which is much less than the value of the smaller output of 1900; the largest output is for 1907, 267,830,962 tons, valued at £120,527,378; the largest valuation is for 1900, given above; output in 1909, 263,774,312 tons, valued at £106,274,888. Exclusive of coal, the spot value of the ores, stone, etc., raised in 1907 was £14,751,710; in 1908, £13,404,822. The value of all mineral produce raised (coal, ores, stone, etc.) in 1907 was £135,279,088; in 1908, £130,003,670, of which £88,617,201 in England, £23,906,434 in Wales, £17,220,218 in Scotland, £217,056 in Ireland, and £42,761 in the Isle of Man. The number of persons employed at all mines was 1,017,740 (of whom 987,813 in coal mines). At quarries there were 85,475 employed.

**FISHERIES.** The value of fish (exclusive of salmon) landed on the coasts of the United Kingdom is reported as follows:

	Eng. & W.	Scot.	Ire.	U. K.
1900				
Fish, wet	£6,610,268	£2,325,994	£306,229	£9,242,491
Fish, shell	334,882	75,906	61,426	472,214
Total...	6,945,150	2,401,900	367,655	9,714,705
1908				
Fish, wet	£7,748,183	£2,512,162	£287,316	£10,547,661
Fish, shell	294,033	74,062	50,497	418,592
Total...	8,042,216	2,586,224	337,813	10,966,253
1909				
Fish, wet	£7,497,139	£2,889,107	£304,937	£10,691,183
Fish, shell	262,900	72,392	58,864	394,156
Total...	7,760,039	2,961,499	363,801	11,085,339

**MANUFACTURES.** Great Britain, and especially England, is preëminently a manufacturing country, but recent statistics, comprehensive and reliable, are not available. The output of smelting products is shown in a foregoing section. Some statistics are available for the textile industry, in which the United Kingdom leads the world and from which about one-half of her exports are derived. In the two years 1908 and 1909, the approximate weight of raw materials used was: Cotton, 1,814,000,000 lbs.; wool, 668,000,000; flax, 219,500,000; total, 2,701,500,000 lbs. In addition, there are large manufactures of silk, jute, hemp, etc. In 1907, there were employed in cotton manufacture 576,820 persons (217,742 males and 359,078 females); wool, worsted, and shoddy, 261,192 (108,838 and 152,354); flax, jute, and hemp, 151,143 (45,910 and 105,233); silk, 28,873 (8776 and 20,097); hosiery, 39,971 (9609 and 30,362); lace, 21,024 (12,843 and 8181); elastic, cocoanut fibre, horsehair, and China grass, 8200 (3642 and 4558); all textiles, 1,087,233 persons employed (407,860 males and 679,363 females). Some idea of the importance of British manufactures may be gained from the following section, which shows the export values.

**COMMERCE.** The values of imports, as given in the following statistics, represent the cost, insurance and freight; or, when goods are consigned for sale, the latest sale value of such goods. The values of the exports represent the cost and charges of delivering the goods on board ship, and are known as "free on board" values. Total imports, imports re-exported, and net imports (i. e. imports for home consumption) have been valued as follows (exclusive of specie and bullion and of foreign merchandise transhipped under bond):

	Total Imps.	Re-exports	Net Imports
1895 ....	£416,689,658	£59,704,161	£356,985,497
1900 ....	523,075,163	63,181,758	469,893,405
1905 ....	566,019,917	77,779,913	487,240,004
1907 ....	645,807,942	91,942,084	553,865,858
1908 ....	592,953,487	79,623,697	513,329,790
1909 ....	624,704,957	91,344,819	533,360,138

The value of diamonds imported into the United Kingdom from the Cape of Good Hope is not included in the total imports; the value of diamonds exported from the Cape of Good Hope to the United Kingdom has been: 1895, £4,754,085; 1900, £3,433,636; 1905, £6,661,957; 1907, £8,828,805; 1908, £4,607,427; 1909, £6,169,953.

Imports and exports of gold and silver specie and bullion have been as follows: 1895, £46,675,661 and £31,726,759 respectively; 1900, £39,513,173 and £31,972,039; 1907, £73,072,439 and £67,786,858; 1908, £56,472,203 and £63,252,987; 1909, £66,506,718 and £60,034,718.

Total exports, re-exports of foreign and colonial produce, and domestic exports (i. e. exports of the produce of the United Kingdom) have been valued as follows (exclusive of specie and bullion and of foreign merchandise transhipped under bond):

	Total Exps.	Re-exports	Domestic Exps.
1895 ....	£285,832,407	£59,704,161	£226,128,246
1900 ....	354,373,754	63,181,758	291,191,996
1905 ....	407,596,527	77,779,913	329,816,614
1907 ....	517,977,167	91,942,084	426,035,083
1908 ....	456,727,521	79,623,697	377,103,824
1909 ....	469,525,166	91,344,819	378,180,347

The total imports of merchandise and the domestic exports of merchandise in 1908 and 1909 are classified in the table on the following page.

Re-exports of merchandise, classified according to the table on next page, showed the following totals in 1909: Class I., £12,000,262; Class II., £54,398,260; Class III., £24,672,737; Class IV., £273,560; total £91,344,819. Leading imports not specified in the table were in 1909: Wheat, £45,272,131; butter, £22,424,962; oil, £13,634,727; silk manufactures, £12,169,205; bacon, £13,801,665; chilled and frozen beef, £10,143,401; rubber, £14,138,204; corn, £12,122,812; fresh fruit, £10,855,200; leather, etc., £11,575,931; refined sugar, £12,621,207; raw sugar, £9,070,687; tea, £9,070,687. Leading domestic exports in 1909 not specified in the table: Cotton piece-goods, £68,279,389; cotton yarn, £11,822,145; woolen and worsted yarn, £5,004,357; coal, £35,319,070.

In 1908, of the total imports of merchandise, the value of £404,817,692 was from foreign countries and £128,135,795 from British possessions; in 1909, £479,453,018 and £145,251,939 respectively. In 1908, of the domestic exports of merchandise, £250,338,797 to foreign countries and £126,765,027 to British possessions; in 1909, £250,942,263 and £117,238,084.

The relative importance of the trade by principal countries in 1908 and 1909 is shown in the table on next page; the figures indicate thousands of pounds sterling and represent total imports and total exports of merchandise.

**SHIPPING.** Total net tonnage, with cargo and in ballast, entered and cleared (exclusive of the coasting trade) in 1900, 1908 and 1909, is shown in table on next page.

Merchandise	Imports		Exports	
	1908	1909	1908	1909
I. Food, drink and tobacco:				
Grain and flour .....	£ 72,733,334	£ 83,107,421	£ 3,522,912	£ 3,399,004
Meat, including animals for food .....	49,448,334	47,623,423	1,052,701	1,070,347
Other food and drink .....			15,962,044	17,461,416
1. Non-dutiable .....	68,576,894	67,848,986		
2. Dutiable .....	48,208,374	50,762,885		
Tobacco .....	5,187,153	4,986,663	1,399,994	1,678,286
Total .....	244,134,089	254,319,383	21,937,651	23,609,035
II. Raw materials and articles mainly unmanufactured:				
Coal, coke and manuf actured fuel .....	4,689	8,297	41,615,923	37,129,978
Iron ore, scrap iron, and steel .....	4,974,723	5,076,131	413,349	509,758
Other metallic ores .....	8,901,105	8,327,193	71,777	95,553
Wood and timber .....	24,306,149	23,591,579	98,218	108,673
Raw cotton .....	55,834,883	60,295,049		
Wool (including rags, etc.) .....	30,746,900	35,041,766	2,662,151	4,280,669
Other textile materials .....	13,698,178	12,127,707	245,471	214,251
Oil-seeds, nuts, oils, fats and gums .....	28,514,967	31,039,893	3,091,825	3,400,766
Hides and undressed skins .....	9,422,965	11,617,756	1,424,760	1,916,634
Materials for paper making .....	4,610,997	4,499,281	543,977	678,049
Miscellaneous .....	22,439,351	28,520,854	2,215,048	2,453,780
Total .....	203,455,017	220,145,496	52,382,499	50,768,111
III. Articles wholly or mainly manufactured:				
Iron and steel and manufactures thereof .....	7,681,512	7,971,594	37,406,028	38,192,142
Other metals and manufactures thereof .....	24,659,602	24,346,328	8,856,472	8,708,945
Cutlery, hardware, implements and instruments .....	3,760,177	3,719,049	5,492,463	5,412,652
Electrical goods and apparatus .....	1,263,762	1,322,509	1,943,104	2,230,799
Machinery .....	4,552,904	4,433,336	30,999,516	28,057,643
Ships and boats (new) .....	18,199	23,926	10,567,475	5,927,114
Manufactures of wood and timber, incl. furniture .....	1,970,917	2,054,258	1,256,806	1,451,073
Yarns and textile fabrics:				
1. Cotton .....	9,475,795	9,839,091	95,055,513	93,444,799
2. Wool .....	9,500,056	9,727,760	28,391,922	30,917,807
3. Silk .....	12,536,224	12,759,931	1,685,622	1,859,979
4. Other materials .....	6,402,863	7,324,676	10,724,427	12,441,525
Apparel .....	4,200,819	5,072,261	8,352,775	9,324,125
Chemicals, drugs, dyes and colors .....	10,185,017	10,596,593	16,271,089	16,783,019
Leather and mfr. thereof, excl. boots and shoes .....	11,562,700	11,617,130	8,826,258	4,242,356
Earthenware and glass .....	3,685,330	3,757,389	3,700,037	3,687,249
Paper .....	5,798,665	5,647,437	2,314,967	2,359,371
Miscellaneous .....	25,840,455	27,432,626	29,610,943	31,405,766
Total .....	143,085,597	147,671,094	296,955,416	297,146,364
IV. Miscellaneous and unclassified, incl. parcel post .....	2,278,784	2,549,984	6,828,258	6,656,837
Grand total .....	592,953,487	624,704,957	377,103,824	378,180,347

	Imports		Exports	
	1908	1909	1908	1909
United States .....	124,161	118,270	42,507	59,254
France .....	48,064	60,691	31,766	31,518
Germany .....	38,031	40,115	46,382	47,169
Netherlands .....	36,348	37,372	18,801	16,304
Russia .....	28,177	36,898	20,505	18,328
Brit. India .....	29,616	35,452	50,844	44,688
Australia .....	29,074	32,656	25,661	27,207
Argentina .....	35,723	32,528	16,956	19,202
Belgium .....	27,152	29,213	17,117	19,285
Canada .....	26,288	27,347	14,212	18,075
Egypt .....	17,591	19,872	9,822	8,142
Denmark .....	19,667	19,427	5,302	5,705
N Zealand .....	14,664	17,731	9,513	8,081
Spain .....	13,334	13,363	5,792	5,352
Brazil .....	6,927	11,272	8,413	8,809
Sweden .....	10,350	9,245	7,299	7,114
Straits .....	7,943	8,124	3,446	3,436
Cape G. H. * .....	6,097	7,693	8,444	9,758
Chile .....	7,381	6,607	4,183	5,054
Norway .....	6,513	6,574	4,483	5,835
Ceylon .....	5,127	5,644	1,853	1,920
Japan .....	2,923	4,233	10,128	8,619
Italy .....	3,440	3,634	16,067	13,275
Rumania .....	3,434	3,395	2,033	1,750
China .....	3,040	3,726	9,292	8,558

\* Imports do not include diamonds.

## SHIPPING

	Shipping	British	Foreign	Total
Entered				
1900 .....	31,445,328	17,777,478	49,222,806	
1908 .....	38,889,588	26,579,469	65,469,057	
1909 .....	39,661,660	26,647,859	66,309,519	
Cleared				
1900 .....	31,265,508	18,035,379	49,300,887	
1908 .....	38,980,184	26,996,955	65,977,139	
1909 .....	40,102,311	26,855,852	66,958,163	

Of the total entered in 1909, 64,327,508 tons represented steamers; cleared, 64,968,655; total tonnage entered with cargo, 40,315,803; cleared with cargo, 57,194,005. Principal foreign tonnage entered in 1909: German, 6,766,591; Norwegian, 4,315,870; Danish, 2,889,986; Swedish, 2,456,144; Dutch, 2,272,075; French, 1,640,466; Spanish, 1,477,199; Belgian, 1,355,135. American tonnage entered was only 274,241. Total net tonnage entered in the coasting trade in 1909, 60,566,043 (56,662,653 British), and cleared 60,060,979 (56,258,528 British). On December 31, 1909, the merchant marine consisted of 11,797 steamers, of 10,284,818 tons net and 9392 sailing vessels, of 1,301,060 tons net; total, 21,189 vessels, of 11,535,878 tons net (18,402,201 tons gross).

COMMUNICATIONS. On December 31, 1908, the total length of railway open to traffic was 23,205 miles; on December 31, 1909, in England and Wales, 16,045, in Scotland, 3844; in Ireland, 3391; total, 23,280. The latter figure represents a paid-up capital of £1,314,406,000, with about 3.39 per cent. in 1909 as the average rate of dividend or interest. In 1909, total gross receipts, £120,174,052; working expenditure, £75,037,588; net receipts, £45,136,464; percentage of working expenditure to gross receipts, 62. Total length of tramways and light railways, December 31, 1908, 2464 miles; December 31, 1909, 2526 miles. Length of state telegraph line, March 31, 1909, 57,858 miles; wires, 1,046,912 miles; offices, 11,077; other

telegraph offices, 2498; telephone subscribers, 61,349; post-offices, 23,772 (1910, 23,925).

FINANCE. The unit of value is the sovereign, or pound sterling, worth \$4.8665. Revenue and expenditure with surplus (+) or deficiency (—), have been as follows for fiscal year, ended March 31:

	Revenue	Expenditure	+ or —
1896.....	£109,339,946	£105,130,474	+£4,209,472
1900.....	129,804,566	143,687,068	-13,882,502
1905.....	153,182,782	151,768,875	+ 1,413,907
1908.....	156,537,690	151,812,094	+ 4,725,596
1909.....	151,578,295	152,292,395	- 714,100
1910.....	131,696,456	157,944,611	-26,248,155

The very large deficit for the fiscal year 1910, was caused by the non-collection of a portion of the revenue owing to the delay in passing the finance act (the deficit occurs largely in the item of property and income tax, which is returned at £13,295,000 in 1909-10, against £33,930,000 in 1908-09). The revenue (exchequer receipts) was derived as follows in 1909-10: customs, £30,348,000; excise, £31,032,000; estate, etc., duties, £21,766,000; stamps (exclusive of fee and patent stamps), £8,079,000; land tax, £150,000; house duty, £580,000; property and income tax, £13,295,000; (total from these sources, £105,230,000, against £125,550,000 in 1908-9 and £130,320,000 in 1907-8); post-office, £18,220,000; telegraph service, £3,090,000; telephone service, £1,720,000; crown lands (net receipts), £480,000; Suez Canal dividends, £1,056,207; fee and patent stamps, £1,037,000; miscellaneous, £863,249; total, £131,696,456. Details of expenditure in the fiscal year 1910: (1) consolidated fund services: National debt, £21,757,661 (including £15,490,798 interest on funded debt and £1,000,000 new sinking fund); civil list, £470,000; annuities and pensions, £265,269; salaries and allowances, £72,332; courts of justice, £518,565; miscellaneous services, £327,389; payments to local taxation accounts, £9,445,395; total consolidated fund services, £32,856,611; (2) supply services: Army (including ordnance factories), £27,236,000; navy, £35,807,000; civil services, £31,260,000; old-age pensions, £8,750,000; customs and excise, £2,116,000; inland revenue, £1,226,000; postal services (including telegraph and telephone), £18,693,000; total supply services, £125,088,000; total expenditure chargeable against revenue, £157,944,611. For the fiscal year 1910, the total exchequer receipts (including the revenue and, on April 1, 1909, a bank balance of £6,350,427) and issues (including the expenditure and, on March 31, 1910, a bank balance of £2,831,248) balanced at £237,124,840.

The budget for 1910-11, introduced by the Chancellor of the Exchequer on June 30, 1910, showed an estimated expenditure of £171,857,000; in addition, there was the 1909-10 deficit of £26,248,000 and £908,000 granted in 1909-10 and payable in 1910-11; total, £199,482,000. The estimated revenue was £199,791,000, consisting of £30,046,000 arrears of taxation, £142,455,000 tax revenue, and £27,290,000 non-tax revenue.

On March 31, 1910, the funded debt stood at £614,868,547, the estimated capital liability of terminable annuities at £35,876,861, and the unfunded debt at £62,500,000; total so-called "dead-weight" debt, £713,245,408 (against £702,687,897 in 1909, £755,072,109 in 1905, and

£628,930,652 in 1900); in addition, there were other capital liabilities amounting to £49,218,217, so that the gross debt stood at £762,463,625 (against £754,121,309 in 1909, £796,736,491 in 1905, and £638,919,932 in 1900). Assets, March 31, 1910, £42,244,600 (including the estimated market value of Suez Canal shares, £35,295,000). Debt charges for the year 1909-10, £20,584,054 (exclusive of £173,607 for the management of the debt).

ARMY. The British Army is organized in two lines: A regular army with its Reserve and Special Reserve, and a territorial army. The first line furnishes garrisons for India, South Africa, and Egypt and maintains at home enough troops to supply the drafts for those organizations in foreign service and depots for the cavalry and artillery, while it also maintains at home sufficient troops to form an expeditionary force brought up to war strength by the reserve. The special reserve would aim to make up the losses caused by the wastage of wars. The reserve includes the former Militia, while the territorial army corresponds to the Yeomanry and the former volunteers. The reorganization proposed by the Territorial and Reserve Forces act of 1907 was carried to completion in 1910 and while much remained towards working out practical details and securing proper efficiency yet the general scheme had been carried out. The whole army establishments and effectives both officers and men is shown in the accompanying table from the Army estimates 1910-11.

	Establishments		Effectives
	1910-11	1909-10	Jan. 1, 1910.
Regular Forces (Regimental), Home & Colonial (including Regular)	1910-11	1909-10	1910.
Establishment of Special Reserves	170,083	169,141	165,686
Colonial & Native Indian Corp	8,580	8,604	8,375
Army Reserve	138,000	137,000	133,990
Special Reserves (excluding Regular Establishment)	86,539	90,664	70,486
Militia Reserve United Kingdom	700	1,650	845
Militia Reserve Division	3,163	3,163	5,010
Militia Reserve Channel Islds, Bermuda and Bermuda volunteers	2,894	2,862	2,582
Territorial Force	315,408	315,842	274,188
Officers Training Corps (Officers and Permanent Staff)	823	788	522
Total Home and Colonial Establishments	726,190	729,714	664,211
Regular Forces (Regimental) on Indian Establishments	75,884	76,009	77,825
Total	802,074	804,973	742,036

Service in the regular army is by voluntary enlistment for a term of 12 years, part of which as specified below is served with the colors and the remainder in the Reserve: Cavalry, 7 years; Royal Horse Artillery and Royal Field Artillery, 6 years, (5000 for 3 years); Royal Garrison Artillery, 8 years, Foot Guards and Line Infantry, 7 years, Royal Engineers, 7 years. On completing these periods of service a soldier serving abroad is liable to be retained with the colors for a period not exceeding one year. There are special arrangements for boys. According to the army estimates of 1910-11 the number of all ranks on the establishment of the regular army was as follows:

	1910-11	1909-10
Cavalry .....	20,378	20,110
Royal Artillery .....	48,263	48,659
Royal Engineers .....	9,989	9,793
Infantry .....	149,824	149,797
Army Service Corps .....	6,696	6,806
Army Medical Corps .....	4,961	4,963
Colonial and Native Indian Corps .....	8,580	8,804
Departmental Corps .....	3,465	2,982
Excess Numbers .....	1,850	1,300
Total .....	254,006	253,004

In addition there were permanent staff of the Territorial Force 2937; Staff and Departments 1152 and miscellaneous establishments 1448, making the grand total voted 184,200, exclusive of the army in India. The army estimates for 1910-11 gave the distribution of the total establishment of the regular army as follows: England and Wales, 96,360; Scotland, 4607; Ireland, 25,737; Jersey, 791; Guernsey and Alderney 917; colonies, Egypt, China and Cyprus, 46,702; in India, 77,866. Total, 254,325.

The expeditionary force mentioned above would consist of 5665 officers and 161,631 men available on mobilization for army service. Of this force 4992 officers and 61,977 men would be drawn from the regular peace establishment (including reserve officers), while 85,013 men would be furnished from the Reserve. From the Special Reserve and from the Territorial Force would be drawn a non-regular contingent of 757 officers and 7350 men, and 7272 men respectively.

The Territorial Army in 1910 was considered an advance over the Volunteers and Yeomanry, which it had supplanted, but it was held to be organized rather on paper than as a trained military force. The Territorial infantry was making some progress, but the artillery and mounted forces presented so many problems that only in the case of a few organizations was anything like reasonable training or proficiency attained.

The army estimates for 1910-11 gave the establishment of the Territorial Force, all ranks, as below, to which are appended the strength on January 1, 1910.

	Establishment	Strength
Cavalry .....	26 111	25,321
Artillery .....	46,061	39,575
Engineers .....	15,550	13,257
Infantry .....	209,976	173,267
Army Service Corps .....	8,884	7,674
Medical Corps .....	15,104	12,549
Veterinary Service .....	212	94
Total .....	312,898	271,737

On April 1, 1910 the establishment of the Territorial Army was given as 11,214 officers and 301,363 others and the strength at 9726 officers and 269 255 others.

The army estimates for 1910-11 amounted to £27,760,000, or an increase of £25,000 as compared with 1909-10 (£27,435,000). The cost of the Territorial Army is approximately £3,100,000 and this item in the future was expected to increase as new rifle ranges were most badly needed as well as additional equipment.

On August 2, 1910, an important Order in Council was issued in reference to the office and duties of the Inspector-General of the Forces, who since the reorganization of the army and the abolition of the position of Commander-in-Chief was the ranking officer, although his functions were advisory and he reported to the

Army Council which administers the army. The inspectional duties of this office by the order mentioned were restricted to the United Kingdom and adjacent islands and the office was to be known as Inspector-General of the Home Forces. The incumbent was Gen. Sir J. D. P. French, G. C. V. O., K. C. B., K. C. M. G., and the staff contained inspectors of cavalry, horse and field artillery, garrison artillery, royal engineers, and infantry. There was also established as an inspectional office that of General officer Commanding-in-Chief in the Mediterranean and Inspector-General of the Oversea Forces. To this office, which in its previous form, it will be remembered, was resigned by the Duke of Connaught and declined by Lord Kitchener, General Sir Ian Hamilton was appointed. The General officer Commanding-in-Chief in the Mediterranean and Inspector-General of the Oversea Forces is to deal with questions of strategy, defence, training, and tactics in communication with the war office and the subordinate commanders. During the year there were no additional schemes of reorganization, although many considered matters in the army far from satisfactory. Every effort was being made to perfect the organization and to develop the Territorial Army which in February reached a maximum of 276,000, or within 10 per cent. of such strength as it was ever likely to reach. After that time there was a decline and many authorities believe that Great Britain must resort to conscription to maintain her military position. The question of horses for cavalry and artillery was also a pressing one and attempts were being made to make up the deficiency and six new depots were proposed, but on mobilization there would be a deficiency of 120,000 horses. It was proposed to bring the establishment of a cavalry regiment up to 696 men and 523 horses. Manœuvres were held on a large scale during the year, and a number of territorial corps were in service with regulars. In the September manœuvres the Blue army was commanded by General Sir Charles Douglas and the Red by Sir Herbert Plummer. The Red army had a territorial mounted brigade, infantry brigade, and field artillery brigade, while a feature of the manœuvres was the presence of the Queen's Own Rifles brought over from Canada.

NAVY. The number and displacement of warships, built and building, of 1000 or more tons, and of torpedo craft of 50 or more tons, were as follows in 1910 (exclusive of vessels over 20 years old, unless reconstructed and rearmed since 1900, those not actually begun, although authorized, and transports, colliers, converted merchant vessels, etc.): Battleships of 10,000 tons and over, 62, of about 984,000 aggregate tons; armored cruisers, 42, of 567,500 tons; cruisers above 6000 tons, 17, of 168,900 tons; cruisers of 6000 to 3000 tons, 51, of 234,100 tons; cruisers 3000 to 1000 tons, 23, of 49,540 tons; torpedo-boat destroyers, 209, of 115,050 tons; torpedo boats, 59, of 12,710 tons; submarines, 84, of 29,378 tons; total, 548 war vessels, aggregating about 2,161,000 tons. The larger vessels of the effective navy were as follows in 1910: Second-class battleships, 8, of 14,150 tons each; 9, of 14,900 tons each; 6, of 12,950 tons each (these 23 battleships were completed between 1892 and 1902); First-class battleships, 8, of 15,000 tons each (completed between 1901 and 1904); 5, of 14,000 tons each

(completed in 1903 and 1904); 2, of 11,800 tons each (1904); 8, of 16,350 tons each (1906); one, of 17,900 tons (1906), the *Dreadnought*, with a main armament of ten 12-inch guns and a speed of 21.25 knots; 2, of 16,500 tons each (1907), the *Lord Nelson* and *Agamemnon*, four 12-inch and ten 9.2-inch guns and 18 knots speed; 3, of 18,600 tons each (1909), the *Superb*, *Téméraire*, and *Bellerophon*, ten 12-inch guns and 21 knots speed; 3, of 19,250 tons each, the *Vanguard* (commissioned March 1, 1910), *Collingwood* (April 19), and *St. Vincent* (May 3), ten 12-inch guns and 21 knots speed; one, of 19,900 tons, the *Neptune* (completed about the end of 1910), ten 12-inch guns and 21 knots speed; Armored cruisers: 6, of 12,000 tons each (1901-4); 4, of 14,100 tons each (1902-3); 9, of 9800 tons each (1903-5); 6, of 10,850 tons each (1905-6); 6, of 13,550 tons each (1906-7); 3, of 14,600 tons each (1908-9), the *Shannon*, *Minotaur*, and *Defense*, four 9.2-inch and ten 7.5-inch guns and 23 knots speed; 3, of 17,250 tons each (1908-9), the *Indomitable*, *Inflexible*, and *Invincible*, eight 12-inch guns and 25 knots speed.

The first-class battleships building in 1910 were: the *Neptune*, mentioned above; the *Colossus* and *Hercules*, of 20,250 tons each, ten 12-inch guns, 21 knots speed, to be completed in 1911; *Orion* (to be completed 1911), *Monarch*, *Conqueror* and *Thunderer* (all three laid down in April, 1910, to be completed in 1912), the four ships of 22,500 tons each, with ten 13.5-inch guns and 21 knots speed. Four ships, probably of same displacement and armament as these last were authorized, but not laid down, in 1910. The armored cruisers building in 1910 were: the *Indefatigable*, of 18,750 tons, and *Lion*, of 26,350 tons, both to be completed in 1911; *Princess Royal*, of 26,350 tons (laid down in May, 1910, to be completed in 1912); *Australia* and *New Zealand*, of 18,750 tons each, offered to the Imperial government by the Commonwealth and the Dominion respectively (both laid down in June, 1910, to be completed in 1912). The *Indefatigable* is to have a speed of 25 knots, the *Lion* and *Princess Royal* 28 knots, and the *Australia* and *New Zealand* 26 knots; all to have a main armament of eight 12-inch guns. Another armored cruiser, similar to the *Princess Royal* was authorized, but not laid down, in 1910. Five protected cruisers were passed into commission and four begun in 1910.

It should be noted that in the construction of the larger ships the all-big-gun, one-calibre principle has been adopted—a principle not confined, however, to Great Britain, but generally adopted by the chief naval powers since the Russo-Japanese war; another feature of British policy is the abandonment of torpedo-boat construction and great activity in the building of torpedo-boat destroyers. The number of officers and men provided for sea service in 1910-11 was 104,116. Naval expenditures in 1909-10, £35,807,000; estimated for 1910-11, £40,603,700. See BATTLESHIPS and NAVAL PROGRESS.

GOVERNMENT. The executive authority is vested in the king, acting through his ministers. The legislative power devolves upon the Parliament, a body of two chambers, the House of Lords and the House of Commons. The House of Lords consists of the lords spiritual—the archbishops of Canterbury and York and 24 bishops of the Church of England—and the

lords temporal, who hold their seats by hereditary right on creation of the sovereign (550 peers), by election for life (28 Irish peers), and by election for each Parliament (16 Scottish peers); total in 1910, 620. The House of Commons consists of representatives of county, borough, and university constituencies in Great Britain and Ireland, elected for each Parliament.

Edward VII. (q. v.) died May 6, 1910, and was succeeded by his second (but only surviving) son, George Frederick Ernest Albert, as George V, "by the Grace of God of the United Kingdom of Great Britain and Ireland and of the British Dominions beyond the Seas King, Defender of the Faith, Emperor of India." He was born June 3, 1865, and married, July 6, 1893, Princess (Victoria) Mary of Teck. The heir apparent is their oldest son, Edward (Albert Christian George Andrew Patrick David), born June 23, 1894, and created Prince of Wales June 23, 1910.

At the end of 1910, those of the King's ministers who form the cabinet were: Prime Minister and First Lord of the Treasury, Herbert Henry Asquith (appointed April, 1908); Lord High Chancellor, Lord Loreburn (December, 1905); Lord President of the Council, Viscount Morley of Blackburn (November, 1910, succeeding Earl Bauchamp, who had succeeded Viscount Wolverhampton); Lord Privy Seal, Earl of Crewe (October, 1908); First Lord of the Admiralty, Reginald McKenna (April, 1908). Secretaries of State: for Home Affairs, Winston Spencer Churchill (February, 1910, succeeding Herbert Gladstone—in March, 1910, the latter was raised to the peerage as Viscount Gladstone on his appointment as governor-general of the Union of South Africa); Foreign Affairs, Sir Edward Grey (December, 1905); Colonies, Lewis Vernon Harcourt (November, 1910, succeeding the Earl of Crewe); War, Richard Burton Haldane (December, 1905); India, Earl of Crewe (November, 1910, succeeding Viscount Morley); Chancellor of the Exchequer, David Lloyd-George (April, 1908); Secretary for Scotland, Lord Pentland (John Sinclair) (December, 1905); Chief Secretary to the Lord-Lieutenant of Ireland, Augustine Birrell (January, 1907); Postmaster-General, Herbert Louis Samuel (February, 1910, succeeding Sydney Charles Buxton). Presidents of committees of the Council: Board of Trade, Sydney Charles Buxton (February, 1910, succeeding Winston Spencer Churchill); Local Government Board, John Burns (December, 1905); Board of Agriculture, Earl Carrington (December, 1905); Board of Education, Walter Runciman (April, 1908); Chancellor of the Duchy of Lancaster, Joseph Albert Pease (February, 1910, succeeding Herbert Louis Samuel); First Commissioner of Works, Earl Beauchamp (November, 1910, succeeding Lewis Vernon Harcourt).

## HISTORY

INTRODUCTION. Down to the political crisis at the close of 1908, which was followed by the general elections in January, 1910, the Liberal party had been in power since January, 1906, when, for the first time in twenty years it assumed the government with an effective majority, for although it was in power from 1892 to 1895, its majority was at that time precari-

ous. During these four years, from January, 1906, to December, 1909, the Liberal Government had devoted a great part of their time to an attempt to carry through the Licensing and Education acts, both of which were unsuccessful. The other leading feature of their policy was a thorough-going plan for industrial legislation, and along this line they succeeded in passing a number of important measures. Among these may be mentioned the Trades Disputes act, making it lawful for a combination to do what an individual might lawfully do, legalizing picketing, and giving immunity to trade union funds; a Workmen's Compensation act, extending the application of the principle of compensation for injuries to additional classes; the small holdings act to facilitate the purchase or lease of Small Holdings of land; the Port of London act, establishing a port authority to purchase and henceforth manage the Port of London docks; a law establishing an eight-hour day in coal mines; the Children's Court act creating a juvenile court and containing many other provisions for promoting the health and safety of children; the Old Age Pension act of 1908, allowing all persons seventy years of age and over, except lunatics, criminals, aliens, and beneficiaries of poor law relief, a pension of 5s. (\$1.25) a week if their incomes do not exceed \$157.50 a year; a Labor Exchanges act, providing for exchanges in London and the provincial cities to facilitate the employment of labor; a Trade Boards act, designed to put an end to the sweating system and providing for commissions of workmen and employers to decide the question of minimum wages; a Development and Road Improvement Funds act, authorizing the application of money to afforestation, land reclamation, agricultural improvement, rural industries, harbor and transportation improvement, etc., and providing for a road board to improve facilities for motor traffic; and a Housing and Town Planning act, aiming to improve the condition of workmen's dwellings. The four last-named measures were passed in 1909, and in that year there was much discussion of a plan for unemployment insurance which, however, was deferred to the following year. In 1909, also, a new Irish Land act was carried through to make further financial provision for land purchase, supplementing the Wyndham act of 1903. The carrying out of this industrial programme had involved heavy expenses. The Old Age Pension act alone had brought in an extraordinary item of expense which had to be met out of the ordinary revenue. In 1909 therefore the Government was confronted with a deficit of £16,500,000. To meet this it presented the budget which contained such a radical departure from precedent in the matter of taxation as to precipitate the Parliamentary crisis.

The means by which this deficit was to be met, in accordance with the taxation scheme embodied in the budget by Mr. Lloyd-George, were as follows: First, the withdrawal of £3,500,000 from the debt reduction fund; secondly, the raising of revenue from three sources of taxation, namely, luxuries of the masses, excess of wealth, and monopolies. Under the first head were included increased duties on spirits and tobacco; under the second, an increase of the income tax on all unearned incomes and on all incomes over £3000, together with a supertax on incomes of more than £5000, in-

creased succession duties on great fortunes, and the levying of a more rapidly progressive tax on estates between £5000 and £1,000,000; under the third head, that is, monopolies, a great increase in the price of liquor licenses, and a new and very important scheme for the taxation of land values, according to which plan there was to be, first, a valuation of the selling price of all lands and then on that basis, four taxes were to be levied: First, a tax on increment value; second a tax on the site value of undeveloped land; third, a reversion tax on benefits accruing to the lessor on the termination of a lease; and fourth, a tax on mineral rights.

The Finance bill embodying these provisions became the subject of the most important and interesting debate of recent Parliamentary history. The debate did not turn on the Government's general industrial programme, although some features of it had been criticised and though the Government was charged with extravagance. It turned on the proper means of meeting the deficit, the Opposition attacking the budget scheme as unfair, discriminating against certain classes, inadequate, likely to discourage the investment of capital and, above all, as socialistic. Toward the end of the year it was evident that the House of Lords would reject the measure. This immediately raised the constitutional question as to the right of the Lords to reject a money bill and gave occasion to renewed demands for a radical reform of the Upper House and even for its suppression. The alternative plan for meeting the revenues offered by the Opposition was the taxation of imports pursuant to the policy of tariff reform which had been long advocated by the Unionists and which appeared to be gaining in public favor. The final debate in the House of Lords began on November 22 when Lord Lansdowne introduced a resolution declaring that the bill should be rejected until the country had pronounced upon it. After a noteworthy discussion this resolution was carried on November 30 by a vote of 350 to 75. Two days later, Mr. Asquith, the Premier, moved in the House of Commons, "That the action of the House of Lords in refusing to pass into law the financial provision made by this House for the service of the year is a breach of the Constitution and a usurpation of the rights of the House of Commons." This was carried by a vote of 349 to 134 and on the following day Parliament was prorogued, the date of its dissolution being fixed on January 8, to be followed by the general elections.

THE POLITICAL CAMPAIGN. The leading issues in the campaign, from the Liberal point of view, were the budget and the veto power of the House of Lords, but the Opposition pressed the question of tariff reform upon the country and the subject of Home Rule was also discussed, Mr. Asquith having committed his party in a public speech to the granting of a measure of Home Rule for Ireland. A novel feature of the campaign was the active part taken by the peers in public discussion. Never before had so many of the nobility appeared on public platforms, and their campaign was, on the whole, spirited and effective. The arguments employed in the canvass may here be briefly summarized: Early in the campaign Mr. Balfour attempted to rouse the country by the fear of a war with Germany. The alarmist spirit had already shown itself on many occa-

sions in 1909 and 1908, and he caused no small sensation in a speech on January 4 in which he declared that many intelligent observers believed war with Germany to be inevitable and that English public opinion was not alive to the danger. While he did not agree with those prophets, he maintained that in the event of conflict England would be overthrown. He declared that the country must bestir itself and organize and equip the navy on such a footing as would avert war. He referred to the remark of men in high position in Germany that their government would never permit England to adopt tariff reform, and said that such a threat made his "blood boil." The war scare was employed by the Opposition as a campaign argument on many occasions. The Liberals made light of the notion that Germany would fight and repeatedly gave assurance that the navy was in a position of unassailable superiority. They characterized the appeal of the alarmists as the desperate resort of a failing cause. As to the budget, the Liberals held that it resorted to the only equitable means of meeting the increased expenditure, that is to say, the levying of taxes in such a way as to distribute the burdens among the different classes. The alternative scheme of the tariff reformers was dismissed as unpractical. The Liberals believed in the open market for a manufacturing and insular country which was industrially supreme and controlled the world's carrying trade. The Opposition retorted that the world was passing through a period of industrial war and that the old idea that Great Britain could supply other countries with manufactures while they supplied her with raw materials was a mere fantasy. Tariff reform would greatly increase employment of labor, could be so executed by the imposition of duties on luxuries as to tax the rich and not the poor, would broaden the basis of taxation and would have the incalculable advantage of permitting Colonial preference. In answer to the Government's plea that the principles of taxation applied in the budget were equitable, the Opposition declared that they rested on the assumption that income and wealth were a fixed quantity and that all that was needed was to divide them fairly. But wealth and income were not a fixed quantity; they depended on the coöperation of many industrial factors, especially upon the investment of capital in the country, and the budget would seriously injure the interests of the working classes by discouraging the investment of capital. The Opposition declared that the main issues of the campaign were two and very simple, namely, the disruption of the House of Lords and the separation of Ireland from the United Kingdom. They told the electors that if the present Government were returned the British members of the House of Lords would support Home Rule at the price of the Irish support of the budget. As to the House of Lords, Mr. Asquith did not say that he meant the abolition of the Upper Chamber, but that was really his purpose, for if the Lords were to lose their veto power, the Upper Chamber would cease to have any reason for existence. The veto of the Lords was, they said, not imposed upon the people but upon the Commons, and the Lords would have been false to their duty if they had not thrown the budget question upon the people. The Liberals maintained that the rejection of the budget by the Lords at the instigation of the tariff reformers

after it had been exhaustively discussed and carried by an overwhelming majority in the Commons was unprecedented and violative of constitutional practice as hitherto recognized by Conservatives and Liberals alike, and marked an assumption by the Lords of a right to control taxation. For four years the Lords had persistently refused to acknowledge the supremacy of the Commons in legislation and it had now destroyed the means of providing revenue for the year.

**THE GENERAL ELECTIONS.** The chief purpose of the Liberals in the campaign was to arouse the electorate to their support in such numbers as would make it clear that the country was in accord with their views as to the House of Lords. They had already a powerful majority in the Commons and if they retained that majority intact or but slightly diminished, it would seem safe to conclude that the country was resolved seriously to curtail the authority of the Upper Chamber. The results of the election, however, were indeterminate. They were as follows, the figures in parentheses showing the strength of the party groups in the previous Parliament:

---

Liberals .....	(373)	275
Labor Party.....	(46)	40
Nationalists .....	(83)	71
Independent Nationalists .....		11
Unionists .....	(168)	273
<hr/>		
Total .....		670
Ministerial majority .....		124

---

In the former Parliament the Liberals and Laborites alone had a majority of 251 over the Conservatives. This majority was thus reduced by the elections to 42, but assuming that the Nationalist and Labor groups would vote for the Liberals, the Ministerial majority was 124. Nevertheless the Liberals received a few more votes than had been cast for them in 1906. On the other hand, the Conservative vote had increased in far greater proportion. There was not nearly so much popular enthusiasm over the question of the Lords as had been anticipated by the Liberals. This constitutional question was presented to the people in a confusing manner and it was evident that they did not form a clear idea of it. On the other hand, the Conservatives did not succeed in rousing the country for protection. Tariff reform was not a direct party issue, but in the elections it cut across party lines. Nevertheless, it was perhaps the leading feature of the election and made great progress in many parts of the country. Even where the Unionists did not gain seats they succeeded in cutting down the majorities against them. In general, in rural England, especially in the middle and southern parts of the country, and including quiet towns, villages, cathedral cities, and the like, Conservatives were chosen. On the other hand, in the industrial towns, with the exception of Birmingham (Chamberlain's headquarters) Liberals were elected. The working classes were, on the whole, either Liberal or Socialist, whereas agriculturalists, the merchant class, clerks, etc., were Conservative. The system of plural voting, that is to say, the granting of the right to vote for property, profession, or occupation, place of residence, etc., whereby certain persons were able to vote several times, especially the rich who owned more than one



HERBERT HENRY ASQUITH  
BRITISH PRIME MINISTER

1470

dwelling, worked on the whole to the advantage of the Conservatives. The verdict was generally interpreted as carrying with it no popular mandate for any radical reform of the House of Lords. It placed the Irish party in a strong position, for it was not possible for the Government to disregard them. Parliament could not, therefore, settle the main questions concerning England without regarding the demands of the Irish members, and the latter were not likely to support the Liberal party unless they received substantial concessions. The Irish opposed certain clauses in the budget, especially the whisky duties, but if the Government purchased their support by giving them Home Rule, the English voters were likely to be alienated and the Lords would certainly oppose. In short the election revealed a comparative indifference to the constitutional question and turned mainly on so-called practical issues. It did not seem that the Liberals could carry out any very radical plan for the reorganization of the Upper Chamber. On the other hand, the Conservatives could not put through their tariff reform scheme. Nevertheless, the tariff reform movement had clearly made great headway throughout the country. It was estimated that the Unionist vote was nearly eight times the Liberal and Labor vote if Scotland, Ireland, and Wales were counted. The Labor party was placed in strong position by the elections, inasmuch as the Government, if it disregarded it, must have the support of either Nationalists or Unionists on account of its diminished majority. Soon after the elections certain cabinet changes were announced. Mr. W. S. Churchill became Secretary of State of the Home Department, Mr. Sydney Buxton President of the Board of Trade, Mr. Joseph A. Pease, Chancellor of the Duchy of Lancaster, and Mr. H. Samuel, Postmaster General.

**OPENING OF PARLIAMENT.** Parliament was opened by the King on February 21. The speech from the throne referred to the consummation of the South African Union at the end of May and to the meeting of the Legislative Councils of India. As to the financial situation it said that estimates would be laid before Parliament in due course. The provisions made by the last Parliament for the year about to end had not been acted upon. The expenditures authorized by that Parliament had been incurred, recourse being had to the temporary expedient of borrowing. A substantial increase in the naval establishment had been necessary. As to the constitutional question it announced that proposals would be laid before the House of Lords to define the relation between the two Houses, and to secure the undivided authority of the Commons in financial affairs, and its predominance in legislation. In the opinion of His Majesty's ministers the House of Lords ought to be so constituted that it would adopt an impartial attitude toward proposed legislation. The debates in Parliament soon showed the necessity of conciliating the Irish party to avoid a political crisis. Mr. Redmond, the leader of the Nationalists, had referred in a speech at Dublin to certain guarantees which he understood the Government was to obtain from the throne for the passage of a veto bill this year. He reminded his hearers of the Liberal pledge that they would not retain office unless they were assured that the Lords' veto would be limited, and he declared that unless

they had some guarantees for the prompt passage of a veto measure, Ireland would not approve their policy. When this was brought up in the debate following the opening of Parliament, Mr. Asquith denied that he had ever said that the Liberal Prime Minister ought not to meet the House of Commons unless he had obtained in advance guarantees for "the contingent exercise of the royal prerogative." To demand such assurances in advance as to a measure that had not even been submitted was, in his opinion improper. The Government intended, however, to present at an early date, resolutions which could afterwards be embodied in a veto bill and this would be carried through in the present session. The budget must be reaffirmed and it was necessary for the House to deal at once with the redemption of the 1900 war loan, and then the renewal of the treasury bills as they fell due; also with the supplementary estimates and with certain necessary votes of supply which must be passed before the end of the financial year. Both the Irish and the Labor members declared their understanding of the situation to be that if the Liberals took office they would deal with the House of Lords at once. On February 28 Mr. Asquith made clear the policy of the Government in this matter, moving that down to March 24 the Government should have all the time of the House for necessary business, which must be disposed of before the end of the financial year. When the House met after Easter on March 29, the Government would, he said, present the Lords' question in the form of resolutions declaring that the Lords must be excluded from financial legislation and that in all legislation their veto power must be so far limited as to insure the predominance of the House of Commons in the life of a single Parliament. He also said that the resolutions were to make it clear that a democratic basis for the Upper Chamber was contemplated and he declared that the Government staked its existence on passing a measure that would rid the Commons of the veto of the House of Lords. In the course of the debate the Government made it known that it would not take up the budget until the Lords' resolutions were out of the way. The early days of the session were taken up with measures for temporary loans to meet the financial emergencies and after some debate and criticism these financial emergency bills, the War Loan Redemption bill and the Treasury bill, were passed by the House of Lords.

On March 14 Lord Rosebery introduced his resolutions for the reform of the House of Lords, of which the following were the leading features: First, "that a strong and efficient Upper Chamber is not merely an integral part of the British Constitution, but is necessary to the well-being of the State and the balance of Parliament;" second, "that such a Chamber can best be obtained by the reform and reconstitution of the House of Lords;" third, "that a necessary preliminary of such reform is the acceptance of the principle that the possession of a peerage should no longer of itself give the right to a seat and vote in the House of Lords." The main points brought out in the debate on these resolutions were the increasing criticism on the part of the nation of the principle of heredity in the constitution of the House of Lords; the evident need of change in spite of the services of the Lords in the

past; the necessity that the House of Lords should reform itself in view of the Government's evident intentions virtually to destroy the House of Lords, substituting for it an impotent and mongrel Upper Chamber, which would leave the House of Commons absolutely in control. The Government would endeavor, it was said, to pass a resolution declaring the complete domination of the Commons, accompanying it by a promise of some time setting up a phantom Second Chamber. Meanwhile they would pass the Home Rule measure; hence the Lords ought at once to set about their own reform. Moreover, it was necessary, that when the Government plans were made known, the Lords should have an alternative proposal to lay before the country. The Rosebery resolutions were carried in the House of Lords on March 21.

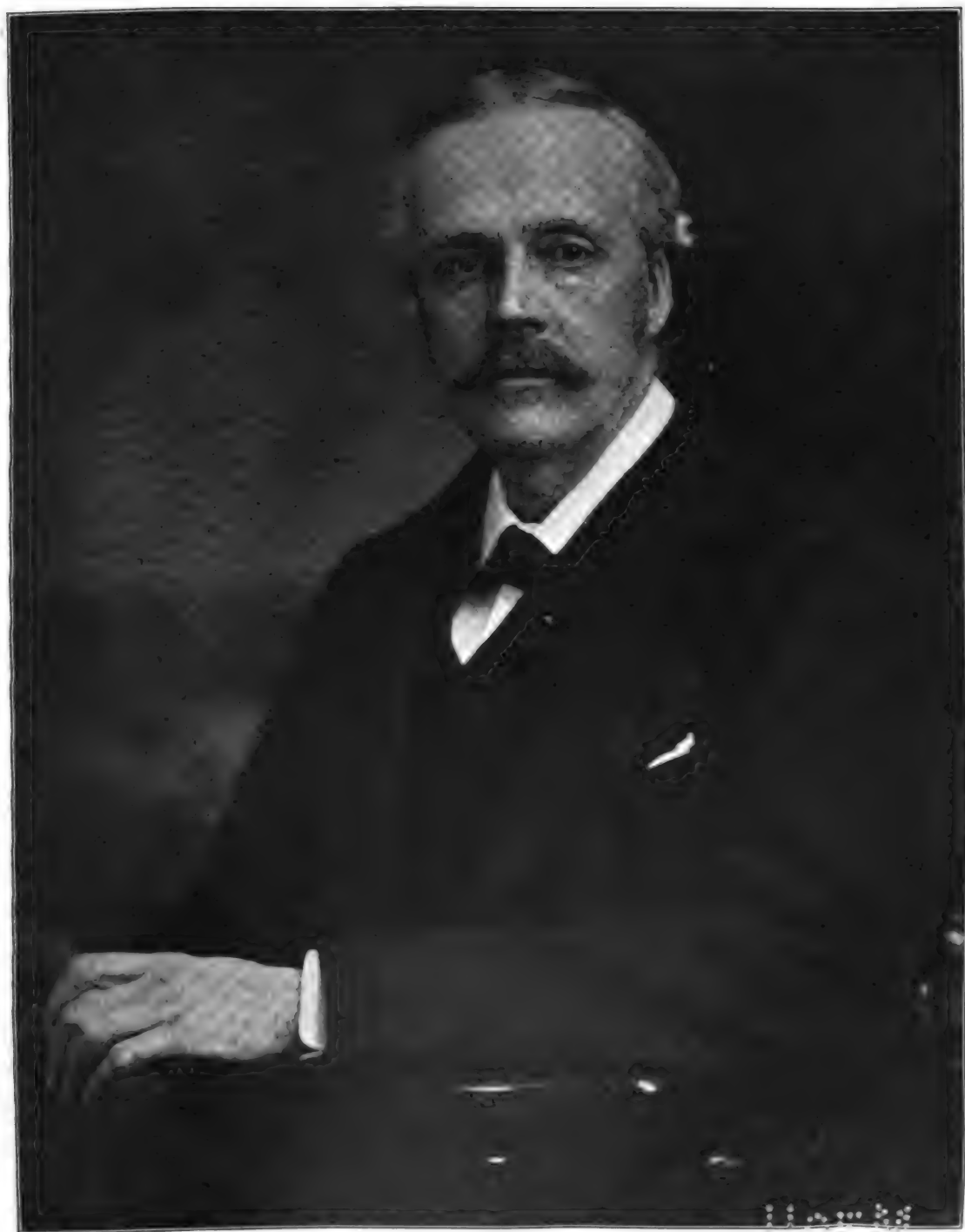
Mr. Asquith declared that the two mandates of the electorate were the passing of the budget and the limitation of the powers of the House of Lords, the latter being the more urgent problem. The Labor party at a meeting on March 21 decided to offer an amendment to the Premier's resolutions as to the relations of the two Houses. It was to be similar to the Labor resolution of 1907, that is to the effect that the Upper House is a hindrance and should be abolished. Down to this time no agreement was reached with the Nationalists as to the budget and its passage still remained doubtful. It was commonly charged by the Opposition against the Government that it had not done all it could to raise money, but wished to heighten and prolong the financial disturbance for party ends. On March 29, after the Easter recess, Mr. Asquith moved that the House go into a Committee of the Whole to consider the resolutions dealing with the relations between the two Chambers. The first of these resolutions asserted the need of preventing the Lords from rejecting or amending money bills. The second, with a view to curtailing their powers in other matters, provided that on the passage of any bill through three successive sessions of the Lower House it should become the law of the land without the consent of the House of Lords despite the latter's rejection in each session as soon as two years should have elapsed from the date of the introduction of the bill. The third resolution reduced the duration of Parliament from seven to five years. Mr. Redmond, the leader of the Irish Nationalists, assured the Prime Minister that he and his friends would support these resolutions. The resolutions were passed by the House on April 14, by a vote of 351 to 246, and at that time Mr. Asquith definitely announced that if the Lords rejected them he would approach the Crown and tender advice as to the steps to be taken if that policy were to receive statutory effect in the present Parliament.

A debate on the navy occurred in the middle of March, when Mr. McKenna offered an explanation of the heavy naval estimates, namely, £40,000,000. He said they were due chiefly to the building of new vessels. He announced that of the five new large ships, two would be in the dock-yard in October and three were under contract; that by March, 1912, 20 ships of the *Dreadnought* type, exclusive of Colonial vessels, would be ready and that by the end of 1910, 15 battleships would be building in the British yards, and that 20 destroyers would be laid

down during the present year. He said that the Admiralty programme rested on a knowledge of what the other Powers were doing and going to do, and that Germany had 13 *Dreadnoughts* now building and had called for four more which might be laid down on April 1, and could be commissioned in two years and two months from that time. The naval administration was criticised by the Labor party for its excessive expenditures, and by the Opposition for its niggardliness.

**THE DEATH OF KING EDWARD.** After a brief attack of bronchitis, King Edward died from heart failure at 11.45 on Friday, May 6. London and all England went immediately into mourning and messages of condolence came from all parts of the Empire and from all foreign nations. Impressive ceremonies were held in both Houses of Parliament and messages of sympathy were addressed to the royal family. There has never been in recent years more genuine evidences of wide-spread grief on the death of a monarch. The Privy Council was held at St. James's Palace on May 7, at which the proclamation of King George the Fifth as successor was signed. The King's body lay in state at Westminster Hall from May 17 to May 19, and the funeral was held on May 20. Seven foreign sovereigns were present, and the other powers were represented by members of the royal families. A procession of sovereigns started from the Palace on the morning of the 20th, headed by King George, with the German Emperor at his right, followed by the kings of Norway, Greece, Spain, Bulgaria, Portugal, Denmark and Belgium, and the heirs of the Austro-Hungarian and Ottoman Empires. Mr. Roosevelt, who had returned from his African hunting trip, attended the funeral in the procession of carriages, with members of the royal family and eminent representatives from foreign nations.

**THE CONFERENCE ON THE CONSTITUTIONAL QUESTION.** After the death of King Edward, there was a lull in political hostilities, both parties seeming desirous of a peaceful solution and a plan for a conference on the constitutional question was seriously considered. The Nationalists and Laborites regarded with anxiety this tendency to compromise, many of them declaring their distrust and dislike of the proposal. A conference on the constitutional question was nevertheless finally decided upon, and began its meeting on June 17. It was attended by four members of the Government, Mr. Asquith, Mr. Lloyd-George, Mr. Birrell and Lord Crewe, and four members of the Opposition, Mr. Balfour, Lord Lansdowne, Lord Cawdor, and Mr. Austin Chamberlain. The Labor Party called a meeting on the beginning of this conference and passed a resolution protesting against the assumption of authority "by the representatives of the two front benches to get behind the decision of the House of Commons." Though the Government was asked repeatedly about the proceedings of the conference, no report of its discussions was given out. After eleven meetings were held, it adjourned on July 30; meetings were resumed on October 11, and the final meeting was held on October 21. It was definitely announced on November 10, that an attempt to reach an agreement had failed. On the day before the Unionist leaders conferred with the members of the former Unionist administration and other prominent Unionist politicians, and



**ARTHUR JAMES BALFOUR**  
**LEADER OF THE BRITISH OPPOSITION**

४१५

it was decided that the terms which were finally regarded as acceptable by the Liberal leaders would not be accepted. The nature of the scheme under consideration was not made known, but it was thought to involve a joint session of representatives of both Houses in case of a deadlock. This was said to have brought up the question of excluding from the jurisdiction of this joint session matters involving organic change in the constitution, as for example, the subject of Home Rule. The failure of the Conference was received with relief by the Irish Nationalists, but in the country at large, great disappointment and concern was manifested.

**THE BUDGET.** On April 14 the House began to discuss the budget of 1910 and after some sharp debating in the course of which the government was accused of buying the Irish vote, by the promise of crippling the House of Lords so that Home Rule could be carried the Finance bill was passed. It passed the Lords soon afterwards without division and received the royal assent on April 29. The second budget was introduced by Mr. Lloyd-George, Chancellor of the Exchequer, on June 30, to replace the budget which had failed of passage on the dissolution of Parliament in the previous year. He announced an anticipated surplus of £861,000, part of which would be applied to the removal of the pauper disqualification for old age pensions after January 1, to local grants for the higher education and to other specified objects, leaving a balance of £309,000. It was necessary to provide for a deficit from last year amounting to £26,248,000 besides arrears of payments into the Local Taxation account, and the expenses of the current year amounted to £171,857,000. He admitted his failure to estimate the revenue from the whisky tax, which had been wrong by several million pounds. On behalf of that tax he declared that there had been a great reduction of drunkenness, which began to decline from the moment when the tax was imposed. (See above, *Finance*). The Chancellor announced that the Government saw its way next year to start a comprehensive national scheme for insurance against unemployment and disability on the contributory system with a liberal State subvention. Recalling last year's national financial disorder he made light of what he called the well organized attempts at despondency and declared that all signs pointed to a greater commercial prosperity than ever before. Referring to the amount of revenue that had been raised during the last ten or twelve months he asked what country could show such a record, and what fiscal system could boast of a similar success. In the debate that followed, Mr. Redmond renewed the protests of the Nationalists against the whiskey duty and repeated the reasons that he had formerly given for supporting the budget. The Nationalists upheld the Government on account of the pledge which they had given that the Veto bill would be carried against the House of Lords. The Labor Party expressed its satisfaction at the financial provisions made for the removal of the pauper disqualification of the Old Age Pension act. There was also general satisfaction with the fact that no new tax was proposed. An important feature of the Government's financial announcement was the promise that it would undertake next year the readjustment of local and Imperial taxation.

**THE QUESTION OF DISSOLUTION.** It soon appeared that the Liberal Government intended to

insist on the dissolution of Parliament at the earliest possible moment. They held that the House of Lords, as at present organized, had a veto power by which they might wreck any legislation that they did not like; that the Upper Chamber had used its veto to destroy the budget and to paralyze the executive and that the present House of Commons was subjected to the same intolerable restraint. Some of the Liberal papers charged the failure of the conference to the refusal of certain peers to be deprived of their powers on the ground that if that were to be done it could be brought about only by the constituencies and not by the conference. This, however, was denied by the Unionists. In the House of Lords, Lord Lansdowne moved a resolution, asking the Government to submit, without further delay, the provisions of the Parliament bill. He pointed to the fact that the House of Lords was willing to proceed with the reform of the House, as was shown by their readiness to deal with the Rosebery resolutions; also that if differences arose, means could be devised for an amicable adjustment. He condemned the veto resolutions as an incomplete attempt to deal with the matter, and as merely preliminary to a bill covering the whole subject. He did not see why a plan could not be devised whereby Lord Rosebery should proceed with his resolutions and the Government go on in both houses with its Parliament Bill. He said it was not reasonable to assume that because the eight gentlemen, meaning members of the late conference, had failed to agree, Parliament would not agree. Lord Crewe in reply said it was plain that Parliament would not agree and that the discussion would be an absolute waste of time. The question of reform had been before the House for many years, but nothing had been done. The Government would place the Parliament bill before the House, but would not enter into any discussion of amendments. The Parliament bill and the Rosebery resolutions were offered in the House of Lords November 15, and the former passed its first reading. At the session of the House of Commons on November 18, Mr. Asquith announced that the Government had decided upon a dissolution. He briefly reviewed the situation reminding his hearers that on April 14, the House had given its assent by large majorities to the Government resolutions upon the House of Lords. Thereupon the Parliament bill had been introduced and read the first time. After some discussion of the budget, Parliament had separated for the spring recess, expecting on its re-assembling to deal promptly with the constitutional question. Then had occurred the sudden and unforeseen death of the King, which was followed by a truce between the parties and the holding of a friendly conference on the constitutional issue. Many meetings were held and it was not until the week before that agreement was found to be hopeless. As to discussion of the subject in Parliament, it was idle to suppose that when an agreement could not be reached by the conference it could be hammered out in the din and stress of Parliamentary debate. Therefore the Government recognized that it was a matter for the electorate to decide. He mentioned November 28 as the date of dissolution. Mr. Balfour in reply referred scornfully to the course of the Government in attacking the House of Lords for delaying the budget and yet now throwing this year's financial bill over to

another Parliament. He accused the Prime Minister of regarding the Parliament bill as verbally inspired beyond all Parliamentary discussion and said that the Government was violating all constitutional traditions. Meanwhile in the House of Lords, Lord Rosebery, in moving the resolutions, said that they showed the readiness and desire of the House to proceed on the plan of reform. A further task before them if they carried these resolutions was the settling of differences between the two Houses. He did not believe that there was no other recourse than to the intolerable tyranny of a single Chamber. In the session of November 18, great excitement was manifested on the announcement of Lord Crewe that the dissolution would assuredly take place. Lord Lansdowne characterized this course as a breach of faith to Parliament and the country. Parliament had been in session only a few months and the Government had received no parliamentary check, yet in this brief period the country was obliged to pass twice through a parliamentary election. He complained bitterly of the insistence that the Parliament bill should be rushed through the House without discussion and without offering of amendments. Lord Rosebery's first resolution was passed on November 17. It read as follows: "That in future the House shall consist of Lords of Parliament (a) chosen by the whole body of hereditary peers from among themselves and by nomination by the Crown; (b) sitting by virtue of the offices and of qualifications held by them; and (c) chosen from outside." On November 21 Lord Crewe moved the second reading of the Parliament bill. Lord Lansdowne, taking it up clause by clause declared that although the Opposition were opposed to it, there were points which admitted of discussion. He asked the direct question whether this bill was not being rushed through the House. On November 23 he moved that the House go into a committee of the whole to consider his resolution as to the relations between the two Houses. These declared that after the House had been reconstituted according to the Rosebery resolutions, a joint session of both Houses should be held if differences arose in regard to any bill other than a money bill in two successive sessions and within an interval of not less than one year, but that if the difference is a very serious matter, it shall not be referred to a joint sitting, but to the popular judgment and referendum. It further decided that the Lords would forego their constitutional right to reject or amend money bills if effective provision is made against tacking. These resolutions were carried and in the general elections that followed, they constituted the Unionist platform on the constitutional bill as against the Parliament bill which represented the position of the Liberals.

**THE CONSTITUTIONAL ISSUE.** Thus at the close of the year Great Britain was facing the most serious constitutional crisis in her recent history. The general Unionist plan for the reform of the House of Lords was outlined by Mr. Balfour in the course of a political speech on November 17. After laying down the proposition that a second Chamber was necessary and must be a real and not a sham second Chamber, he declared that the House of Commons must be the dominant Chamber. The proposed reforms were to accomplish the following results: The

number of members of the Upper Chamber was to be diminished; an hereditary peerage would not carry the right to a legislative seat and the new Chamber would consist of, first, persons qualified by distinguished public service; second, persons elected by the peers; and third, persons numbering at least half of the total, who were elected or chosen from outside; deadlocks were to be broken by conferences of joint sessions and in case of disagreement on a matter of national importance the people were to decide. The position of the Liberal Party as expressed in the Veto Resolutions and the Parliament bill may be briefly summarized as follows: The Second Chamber should be constituted on a popular and not a hereditary basis, but as this could not be brought about immediately, the present powers of the House of Lords were to be restricted; the right of rejecting or amending money bills, was to be denied it, and any measure should be considered a money bill if, in the opinion of the Speaker of the House it dealt in any manner with taxes, charges of the consolidated funds, provision of money by Parliament, supply, the appropriation or regulation of public money, or the raising or guarantee of any loan or repayments thereof. If a measure other than a money bill shall pass the Commons in three successive sessions, it is to become a law in spite of any rejection or amendment by the Lords, if two years have passed after the introduction of the bill into the House of Commons, and it then be passed for the third time through that House. The Liberal plan also limited the duration of Parliament to five years.

**THE POLITICAL CAMPAIGN.** Parliament was dissolved on November 28, after a session of ten months, shorter than any preceding session of Parliament during the past 25 years, and writs for the new election were immediately issued. In the speeches by the leaders of both sides, attention was concentrated on the constitutional question. On the Conservative side the Government plan was vehemently denounced as virtually setting up a single chamber government. Moreover, they declared that the plans for the reform of the House of Lords, put forward by the Opposition were genuine and thorough-going measures and would effect the necessary improvements. They maintained that the Government in its campaign on this question had been dominated by the Socialist and Irish Nationalist elements and they made much of the effect of American dollars as an important influence in the Labor campaign. The latter charge was based on the fact that Mr. Redmond had returned from his trip to the United States and Canada with a guarantee of contributions to the Home Rule cause amounting to some \$200,000. Tariff reform was again put forward by Mr. Balfour as an issue and he caused a great sensation in a speech on November 29, in which he declared that he had not the slightest objection to submitting the principles of tariff reform to a referendum. This proposal was greeted with great enthusiasm in certain quarters as a number of the Unionists were free traders and feared that a return of the Opposition to power might mean the rushing of a protective measure through Parliament without giving the people a chance to vote upon it. On the other hand, the Liberals ridiculed the charge that they aimed at a single-chamber Government. They sought merely the means of guarding against possible abuses, and their proposals

were not revolutionary, but were for the interests of constitutional development. They declared that at present they were overridden by the overwhelmingly Tory Chamber, and could not carry out the social and economic legislation which the majority of the electors supported. They retorted that the present system was virtually a single-chamber system, the House of Lords having a complete check on legislation. Mr. Asquith ridiculed the sudden change of front on the part of the House of Lords, who, a year ago were designating that Chamber as the "Ark of the Constitutional Covenant," but were now hastening to reform it. He said this ancient and picturesque structure has been condemned by its own inmates as unsafe. The "parricidal pick-axes" were already at work. He designated Lord Rosebery's proposal as altogether nebulous and simply providing for a vague body of peers distributed in undefined proportions and elected by nobody knows whom. The Liberals charged the Conservatives with a more formidable and revolutionary innovation than anything that their own party had ventured, namely the sudden adoption of the principle of referendum. The cry of American dollars was a mere effort to frighten the timid voters and was, in fact, ridiculous in that the amount was too small to be of any importance, and moreover it had been contributed by Canadians as well as Americans, including contributions from persons like Sir Wilfrid Laurier and other well known Canadian statesmen. Mr. Redmond's position on the Home Rule question was that which had been Parnell's. His minimum demand was for an Irish Parliament, with an executive responsible to it and with full control over all purely Irish affairs. He held that the British Prime Minister and the entire Labor party was pledged to this definition of Home Rule. What was called devolution, that is to say, the creation of a Council in England, without legislative powers, had been proposed in 1907 by the Liberal Party in a parliamentary bill, and rejected by the Irish Nationalists. He considered that a dead issue. As to a federation, which should include representative bodies from Scotland, England and Wales, he held that Home Rule might be so framed as to fit into the general scheme, but Ireland could not wait until other portions of the United Kingdom were ready for it. The numerical strength of parties in the House of Commons on the eve of the election was as follows:

---

Liberals .....	275	Labor Party .....	40
Nationalists .....	72	Independents .....	10
Total .....	379	Unionists .....	273
Ministerial major.....	124		

---

**THE DECEMBER ELECTIONS.** The elections began on December 3, and were completed on December 20. The excited discussions in and outside Parliament during the year and the oratory of an exceedingly bitter campaign, seem not to have affected the opinions of the electors in the slightest degree. The Government majority remained practically the same. The elections returned 272 Liberals, 272 Unionists, 42 members of the Labor Party, 75 Nationalists, and 9 Independent Nationalists. Thus the Government could muster a majority on the constitutional question of 126, a net gain of two over the preceding Parliament, according to some reckonings a gain of only one. Discussion at once arose as

to the proper interpretation of this result in regard to the constitutional question, many Unionists insisting that as the Government had received only the same majority as before it had no warrant from the people in proceeding to any radical change in the House of Lords, and many Liberals declaring that a referendum on the constitutional question had been taken in the elections and, however small its majority, the Government was justified in carrying out the policy for which it stood. Moderates in both parties, pointing to the fact that while the Government could present a majority on the question of the Lords, it was in a precarious position as regards other issues, declared that the only reasonable course was a settlement of the veto question by agreement. The year closed amidst a great deal of perplexed comment on the indeterminate and unsatisfactory results of the elections and there was much speculation as to the course which the Government would take in the next Parliament in regard to the House of Lords and Home Rule. As to the latter, Mr. Lloyd-George had declared during the election that a Home Rule measure would be introduced "at the first available moment" and that it would not merely extend self-government to Ireland, but would aim at reconstructing the present Imperial machinery in such a way as to free Parliament from details which could be better dispatched in the districts concerned. These then were the two main problems at the close of the year: The question of altering the House of Lords, with the danger that a radical course might cause a deadlock between the two Houses and lead to the creation of new peers and that a conciliatory course on the other hand might alienate many of the Government's supporters; and the question of Home Rule with the difficulty of devising a measure thorough enough to suit the Irish Nationalists and not too radical for the English Liberals, to say nothing of the other knotty problems involved in it as for example the status under Home Rule of Protestant Ulster where the majority was bitterly hostile to it. An important feature of the year's politics was the growing belief in the principle of the referendum or appeal to the electorate on the great national issues before Parliament.

**ACCESSION DECLARATION ACT.** There had been in 1909 much discussion over the question of striking out the clauses in the declaration required of the sovereign in his accession that were offensive to the Roman Catholics. A bill for the omission of the invidious terms and at the same time removing the few remaining political disabilities from the Roman Catholics was brought in by the Government in the spring of 1909, but was dropped. The question as to the declaration was revived in 1910, and the Government introduced a bill which greatly shortened it and removed the offensive phrases. It was carried and received the royal assent on August 3. The new form of declaration is as follows:

"I (name of sovereign) do solemnly and sincerely, and in the presence of God, profess, testify and declare that I am a faithful Protestant, and that I will, according to the true intent of the enactments which secure the Protestant Accession to the Throne of my Realm, uphold and maintain the said enactments to the best of my powers according to the law."

**THE OSBORNE JUDGMENT.** In December, 1909,

the judges delivered in the House of Lords a notable judgment in the Osborne case. Suit had been brought by a colored railway porter named Osborne for the recovery of funds which had been obtained from him as a member of a Labor Union, for the support of the Labor Party. The court decided that the funds of trade unions could not be employed for that purpose. After this decision injunctions were secured against the use of funds for this purpose in one union after another. As it cut off the supplies of the Labor Party, the situation was one of great political importance. Representatives of the Labor party, the General Federation of Trades Unions and a Parliamentary Committee met in February and again on August 22, to discuss the subject. At the latter meeting they passed a resolution declaring that the decision did not merely affect Parliamentary representatives, but struck at freedom of discussion and of resolution enjoyed by the Trade Union Congress in so far as such discussion assumed a political character in the interest of the wage earner and that it really prevented trade unions from carrying out their purposes which were recognized by law, namely, the regulation of the relations between employers and employees, since in the highly organized state of modern industry Parliamentary action was a necessary means to that end, and that the decision deprived them of a right which they had enjoyed for nearly fifty years. The Board therefore demanded the restoration of these rights.

**LABOR TROUBLES.** The new labor exchanges, several of which were established on February 1, under the Labor Exchange act of 1909, did much to mitigate the evils of unemployment. Nevertheless, there were several very serious strikes and lockouts in the course of the year. In July traffic was disturbed for several weeks on the Northeastern Railway, owing by a strike of some 10,000 employees, who resented certain alleged tyrannical methods on the part of officials. On September 3, a shipyard lockout occurred on the Clyde and Northeastern coast as a result of a number of small strikes of workmen, who would not abide by the agreements between the employers and the representatives of their own unions. As a protest against this refusal to hold to collective agreements, the northern shipyard employers determined on a lockout of the boiler makers, which lasted fifteen weeks, causing an immense loss of wages. A brief strike and lockout occurred in the Lancashire cotton industry as a result of which, 700 mills were closed and some 150,000 workmen thrown out of employment for two or three weeks. The most serious disturbances of the year took place in connection with a strike in the South Wales coal field. Riots occurred among the coal miners in the Rhondda and Aberdare valleys in Wales where many conflicts took place between the strikers and the police and much damage was done to property. The town of Tonypandy fell into the hands of the mob and it was necessary to call out the troops. Riots continued for several days during the second week of November throughout the region.

By the middle of November order was restored in the Wales coal field, but the men were still in a dangerous temper and the police and military forces were retained there.

There was further rioting at Tonypandy and Pennygraig on November 21, resulting in the injury of a number of the police, but during the

following week there were signs of abatement.

**PAUPERISM.** In a speech toward the end of the year, Mr. Burns, President of the Local Government Board, declared that although there was an increase in the cost of pauperism, the amount of pauperism had greatly decreased, and there was at present the lowest out-door pauperism ever recorded for England and Wales and the lowest in London for seven years. Indoor pauperism had not changed in the past ten years. This was because the workhouse no longer had its terrors for the working classes that it formerly did as it was found that the inmates were well treated. A large portion of the paupers were treated in special institutions where their ailments were properly cared for. About 45 per cent. of pauperism was due to age infirmity and 30 per cent. to sickness. See above, paragraph on *Pauperism*, also article on **CHARITY**.

**WOMAN SUFFRAGE.** A Parliamentary Franchise bill extending the suffrage to women was introduced by Mr. Shackleton. It reached its second reading on July 12, and was referred to a committee of the whole House. Woman suffragists assaulted Mr. Churchill as he was returning to London from a political meeting at Bradford, November 26. The suffragist riots had resulted in many arrests. On November 25, 21 additional cases came up before the magistrate, the charges being window breaking and missile throwing. The judge imposed a sentence of two month's imprisonment in 15 cases and in other cases a lighter penalty. See **WOMAN SUFFRAGE**.

**GREAT LAKES, TRADE OF.** See **UNITED STATES, Commerce**.

**GREAT NORTHERN RAILWAY.** See **RAILWAYS**.

**GREECE,** A constitutional monarchy in southeastern Europe. Capital Athens.

**AREA, POPULATION, ETC.** Area, 24,973 square miles. Population (1896), 2,433,806; October 27, 1907, 2,631,952. The country is divided into 26 nomes, or departments. Emigration to the United States in 1905-6, 19,490; in 1904-5, 10,515; in 1903-4, 11,450. Athens had (1907), 167,479 inhabitants; Piræus, 73,579; Patras, 37,724; Volo, 23,563. Education, nominally compulsory, is not well enforced in the rural districts; of the army recruits, 30 per cent. are illiterate. Primary schools (1902), 3263, with 4346 teachers and 210,570 pupils; Greek schools (so-called), 285, with 833 teachers and 22,039 pupils; gymnasiums, 39, with 300 teachers and 5556 pupils; private schools, 24, with 1150 pupils; normal schools 13, with 1164 students. There are special, technical, and fine-arts schools; and the University of Athens, with 2574 students. The Greek Orthodox is the state Church, but entire religious liberty prevails.

**AGRICULTURE.** The soil is very fertile, and Greece is naturally an agricultural country; yet agriculture is not well developed. Of the productive area (5,563,100 acres), 1,112,000 acres are under cereals, 1,200,000 fallow, and 2,025,400 under forest; 5,000,000 additional acres are under natural pasture, and 53,000 acres have been acquired for agricultural purposes by the draining of Lake Copais. The currant crop is the most important, the annual yield being about 150,000 tons. The 1908-9 crop is reported at 185,000 tons; 1909-10, 155,000. The Privileged Company for the Protection of Currant Production and

Trade fixes prices. As the annual universal consumption of currants is about 115,000 tons, and shows a tendency to decrease, the problem of disposing of the large annual surplus production becomes yearly more acute. During December, 1909, a convention was passed by the Greek government authorizing the Privileged Company to raise a loan of 20,000,000 drachmas (gold drachma=19.3 cents). Of this sum about 15,000,000 drachmas is to be expended in compensating growers for the uprooting of redundant currant plantations, with the object of reducing the crop by 25 per cent. The interest of this loan is secured by increasing the export duty from 7 to 8 drachmas per 1000 Venetian pounds (Venetian pound=1.05 pounds avoirdupois) in cash, in addition to the existing export duty in kind of 35 per cent. Olive acreage, about 600,000; yield of oil (1908), 16,960,000 gallons. Annual wheat production, 8,000,000 bushels. Wine production (according to *Le Moniteur Vinicole*) in 1908, 39,600,000 gallons; in 1909, 48,400,000. Tobacco crop (1908), 5465 metric tons; valonia, 4000 tons. Estimated production of rosin (1910), between 9000 and 10,000 tons; of turpentine, 1750 to 2000 tons. Silk culture is carried on. Livestock: 100,000 horses, 360,000 cattle, 2,900,000 sheep.

**MINING.** The mineral output (in metric tons) for two years with the value in pounds sterling is given below:

	1906		1907	
	Tons	£	Tons	£
Iron .....	680,620	196,408	768,883	228,973
Manganiferous iron ore.....	96,382	46,472	92,770	44,015
Zinc ore.....	26,256	107,953	30,346	119,673
Manganese .....	10,040	6,747	11,139	9,552
Chromite .....	11,530	17,295	11,730	19,706
Magnesite .....	64,424	58,221	60,348	54,702
Lignite .....	11,582	6,755	11,139	9,552
Emery .....	7,565	32,228	10,689	45,109
Salt .....	25,167	70,468	26,966	108,046
Lead (argent).....	12,308	285,023	13,814	313,500
Spells .....	260	6,856	.....	.....
Gypsum .....	70	196	.....	.....

**COMMERCE.** The trade for three years is given below in drachmas (1 drachma=19.3 cents):

	1907	1908	1909
Imports .....	148,393,000	152,635,000	135,907,000
Exports .....	116,049,000	109,244,000	101,413,000

The principal articles of special trade for 1908 are given below in thousands of drachmas:

Imps.	1000 drach.	Exps.	1000 drach.
Cereals .....	35,172	Currants .....	30,476
Textiles, etc.....	21,500	Olive oil.....	14,305
Coal .....	13,628	Lead (argent.).....	10,231
Mins. and mets..	9,199	Wine .....	8,891
Timber .....	8,522	Tobacco .....	6,270
Chem. prods.....	7,693	Iron .....	5,253
Fish .....	7,063	Zinc .....	4,736
Animals .....	4,185	Olives .....	3,663
Paper .....	4,158	Figs .....	3,354
Iron mfrs.....	3,654	Grapes .....	2,727
Skins .....	3,462	Silk (raw).....	2,737

Principal countries of origin and destination with value of trade for 1908 in millions of drachmas:

	Imps.	Exps.		Imps.	Exps.
Gr. Brit.....	36.0	26.6	Bulgaria ..	9.2	.1
Russia .....	22.2	2.2	U. States ..	7.1	6.1
Aus.-Hun. ....	17.7	12.7	Italy .....	6.0	9.2
Germany .....	14.7	10.2	Belgium ..	4.2	4.1
Turkey .....	12.2	5.7	Neth's .....	2.7	9.4
France .....	10.8	11.2	Rumania ..	1.9	.7

Vessels entered (1907), 6412, of 4,812,834 tons; cleared, 6253, of 4,814,549. Merchant marine, 1092 sailing vessels, of 154,912 tons; 282 steamers, of 276,147 tons.

**COMMUNICATIONS.** Length of railways open for traffic (1909), 830 miles. The line to the frontier at Keralik is being continued; but it is thought that Turkey will not permit its extension to Gida, on the Salonika-Monastir line, as projected. Telegraph lines, 4981 miles; post-offices, 1147. The ship canal through the Isthmus of Corinth is seldom used by foreign vessels.

**FINANCE.** The monetary unit is the drachma, worth 19.3 cents. The revenue and expenditure for three years are given below in drachmas (1908 and 1910, estimates):

	1908	1909	1910
Revenue .....	128,301,087	129,719,358	148,561,837
Expenditure .....	128,767,739	126,708,010	146,041,222

The sources of revenue and items of expenditure as estimated for 1910 are given as follows:

Rev.	1000 drach.	Expend.	1000 drach.
Duties, etc.....	54,234	Debt .....	30,779
Stamps, ".....	27,055	War .....	20,068
Direct taxes.....	24,771	Interior .....	16,113
Monopolies .....	24,960	Administration ..	15,125
Domains .....	7,301	Marine .....	11,475
Deductions .....	3,592	Pensions .....	7,824
Exchange .....	96	Justice .....	5,945
Various .....	4,653	Education, etc....	5,582
		For. Affairs.....	3,313
Total ordinary.....	146,663	Finance .....	2,428
Extraordinary ..	1,899	Civil list.....	1,325
Total .....	148,562	Various .....	11,091
		Extraordinary ..	14,070
		Total .....	146,041

Outstanding external debt, December 31, 1909, 701,342,000 drachmas gold; currency debt, December 31, 1909, 102,437,125 drachmas paper. The Greek government was reported in the summer of 1910 to have placed a loan for 40,000,000 drachmas in France.

**ARMY.** The law of 1904 provided for compulsory military service on the part of all males between the ages of 21 and 51 years, which service includes 14 months with the colors, 10 years and 10 months in the reserve, 8 years in the national guard or territorial army and 10 years in its reserve. It was proposed during the year 1910 to increase the time of service, making it begin at the 19th instead of the 21st year and permit no exemptions. Thus, instead of an army of from 120,000 to 130,000 on a war footing as theoretically provided for by the law of 1904, there would be an army estimated at over 200,000. Then the second reserve and the national guard would give 250,000. The proposed increase in service would be active army 2 years, first reserve 12 years, second reserve 9 years, national guard 7 years, national guard reserve 7 years. The budget submitted in 1910 for the peace establishment provided for a force of 25,526 of which 1186 were officers, 3741 non-commissioned officers, and 19,899 men. On October 15, 1910, 3321 recruits were scheduled to be added so that the annual contingent was about 15,000 men in place of the previous quota of about 12,000. The grand total of the 1910 budget for military purposes was 23,150,238 drachmas in which all the items experienced increases. The army is largely a skeleton organ-

ization capable of expansion in time of war, but in numbers and experience the officers were believed to be inadequate for the formation of a grand army of the size contemplated. There were in the peace establishment three divisions which in case of war would become six. Each of these was composed of two infantry brigades, two battalions of chasseurs-à-pied, 1 regiment of artillery, 1 regiment of cavalry, 1 battalion of engineers, and various technical troops: There were 6 mountain and 3 heavy gun batteries while on a war basis an additional artillery regiment would be added to each infantry division.

**NAVY.** The effective navy includes 3 coast-defense vessels of 5000 tons each, and 19 old-style torpedo boats. An armored cruiser of 10,000 tons is building in Italy. Personnel, about 4000.

**GOVERNMENT.** The executive power rests in the king, aided by a responsible ministry of seven members. The king (1910), George I., was born December 24, 1845; elected King of the Hellenes by the National Assembly March 18 (30), 1863; married, October 27, 1867, to Olga, daughter of the Russian grand-duke Constantine. Heir-apparent, Prince Konstantinos. The National Assembly (the unicameral legislative body) has 235 members directly elected. The Ministry, as constituted October 19, 1910, was composed as follows: Premier, Minister of War and of Marine, E. Venezelos; Finance, L. Koromilas; Interior, E. Repoulis; Justice, N. Dimitrakopoulos; Worship and Instruction, A. Alexandris; Commerce and Agriculture, E. Benakis; Foreign Affairs, J. Gryparis.

### HISTORY

**REFORM MOVEMENT.** The Military League, which had proved its power repeatedly during the previous year, was still in control of affairs and on January 1, 1910, demanded that the Chamber should sit through the holidays and vote the budget, together with a long list of other specific measures, and that the Greek diplomatic representatives at Vienna, Paris, Berlin and Rome should immediately be recalled. The Premier acceded to these demands. The League then insisted on the dismissal of the Minister of the Interior whereupon the cabinet resigned, but at the King's request remained in office. On January 3 a new Minister of the Interior was appointed who was himself a member of the League. Thus again the League had scored a victory. The movement for the calling of a new National Assembly to revise the constitution now gained ground owing largely to the efforts of M. Venezelos, a deputy from Crete. A majority of the political leaders supported this demand and at the beginning of February the King agreed to the calling of the new convention. At the same time a new Ministry was formed under M. Stephen Dragoumis. It was decided to adjourn the Chamber and hold the National Assembly in the autumn. There did not seem to be great popular interest in the new Assembly, and fear was expressed that it might assume a revolutionary character and lead to disturbances, since for a whole year the country would be without a Chamber. But there was a general desire that the domination of the Military League should come to an end and the latter had definitely promised to dissolve as soon as the King proclaimed the National Assembly. At the beginning of March

the programme for the revision of the constitution, which would be carried out by the new Assembly, was submitted to the party leaders. The changes concerned chiefly the rules of the Chamber. The resolutions defining the changes were passed soon afterwards in the Chamber by a vote of 150 to 11. On March 30 the King and Queen attended the Chamber and the King read the proclamation summoning the National Assembly. The Military League promptly announced its dissolution. In some quarters fear was expressed that the King's assent to this new constitutional convention might prove fatal to the dynasty and tend to disturb the peace of the Balkans.

The mutiny in the navy in 1909, which had proved abortive and been promptly put down nevertheless indicated a condition of affairs in both army and navy that prevented the authorities from proceeding severely against the offenders. Typaldos, the leader of the mutineers, and eleven others were brought before the Court of Appeals which decided that they must be tried by the Civil Criminal Court. Typaldos alone was held for trial and the eleven others were released. Early in February a decree of general amnesty, including Typaldos, was signed.

The Chamber provided that the budget deficit down to 1909 should be met out of the revenue from the sugar monopolies, from the surtax on alcohol and tobacco, from the new railway and from the surplus of revenues reserved for the public debt. A bill was passed authorizing the loan of 60,000,000 dr. for the suppression of a forced currency.

**THE NATIONAL ASSEMBLY.** Elections for the Greek National Assembly, which began on August 21, passed off quietly. The Assembly was opened on September 14 by a speech from the throne which declared that the Assembly's course in revision should be limited to non-fundamental parts of the constitution, this being the condition upon which the people had been called to choose deputies. On the opening of the new body, the former Prime Minister, M. Rallis, was driven from the chair and soldiers were called in to put an end to the fracas. The question arose whether the Assembly should take its oath as a constituent body or in the manner prescribed by the constitution. The latter was finally decided upon in spite of the efforts of the Independents. There was much agitation on this subject, and M. Venezelos in the course of a moderate speech declared that extreme measures were not advisable and urged that the army should return to its proper duties. He spoke of the Assembly as a revisionary and not a constituent body. The deliberations of the National Assembly were interrupted by violent scenes in October and the Premier warned the deputies on this occasion of the great danger in which Greece found herself at the present moment, reminding them that internal dissensions might cost the country's independence. The cabinet resigned from office on October 12. M. Venezelos became the new Premier and appointed his cabinet. This caused much indignation among the aggressive members of the Young Turk party in Turkey, some of whom demanded that diplomatic relations should be broken off and that Hellenic subjects should be expelled from the Turkish dominions. M. Venezelos was regarded in Turkey as an Ottoman deserter, and to appoint him to the Premiership seemed a direct insult to

Turkish susceptibilities. The question soon arose whether the government had assumed authority to dissolve the Chamber. Receiving no satisfaction from M. Venezelos, the Premier, in response to inquiries, political leaders of the old parties withdrew, leaving less than a quorum present. In spite of a vote of confidence by the remainder, M. Venezelos offered his resignation, but was induced to withdraw it by the King. On October 23 a vote of confidence was accorded him. On October 25 the King dissolved the revisionary Assembly and announced December 11 as the date for the elections. This caused no excitement among the people, by whom, it was generally assumed, the King's action was approved. The elections resulted in a triumph for M. Venezelos whose majority in the new Chamber was estimated at 300.

**RELATIONS WITH TURKEY.** In September and October there was considerable anxiety in Greece, lest the Young Turk element which virtually controlled the army should suddenly decide upon an invasion of Greek territory. It was said that a plan for invading Thessaly was discussed by the young Chauvinistic officers in the Turkish army, who conceived that such a scheme might force the hand of the government, owing to the great hostility against Greece over the Cretan question. On September 30 a Royal decree declared the three Cretan seats in the Assembly vacant and fixed the date for the election of new members. Thus the Turkish government no longer had this pretext for proceeding against Greece. Nevertheless public opinion in Greece was alarmed over the possible designs of Turkey and favored the intervention of the Powers at Constantinople in the cause of peace. Turkish troops were stationed too near the Grecian border to admit of a feeling of security.

**GREECE, EXCAVATIONS IN.** See **ARCHAEOLOGY.**

**GREEK STUDIES.** See **PHILOLOGY, CLASSICAL.**

**GREEN, ANNA KATHARINE.** See **LITERATURE, ENGLISH AND AMERICAN, Fiction.**

**GREEN-HINMAN BILL.** See **NEW YORK, and NOMINATION REFORM.**

**GREENLAND.** A great island in the Arctic regions of the Western Hemisphere; a Danish colony. The area is variously estimated at from 500,000 to more than 800,000 square miles. The colonized area (extending along the west coast between 60° and about 72° north latitude) covers about 46,740 square miles and has a population of 11,895 (1901). Seal- and whale-oil, skins, eiderdown, feathers, and cryolite are the chief articles of export. The trade is a Danish monopoly and amounted in 1908 to £76,050 imports and £30,200 exports. The colony is administered by a director (1910, C. Ryberg) residing at Copenhagen.

**GREGH, FERNAND.** See **FRENCH LITERATURE.**

**GRENADA.** An island (the largest) of the Windward Islands (q. v.); a British crown colony. Area, 133 square miles. Population (1901), 63,438; estimated, December 31, 1909, 74,160. Marriages (1909), 277; births, 2557; deaths, 1385. Capital, St. George's, with 5188 inhabitants. Number of persons engaged in agriculture, 16,098. Total primary schools in 1909 (government, grant-in-aid, and private), 49, with 8481 pupils. Total imports (1909), £268,236 (live animals, foods, and drugs, £128,595; manufactured articles, £105,673; raw materials, £24,010; coin, bullion, etc., £9956).

Exports, £284,845 (cacao, £248,398; coin, bullion, etc., £1655). There are no railways. Telegraph connection exists with other West Indian colonies. Shipping (1909) entered and cleared, 525 vessels, of 293,007 tons. Post-offices (1900), 15. Actual revenue and expenditure in 1908-9, £73,182 and £72,661; in 1909-10, £71,224 and £73,281; estimates for 1910-11, £75,105 and £78,146. Governor of the colony in 1910, Lt.-Col. Sir James Hayes Sadler.

Of the **GRENADINE ISLANDS**, half are attached to Grenada, half to St. Lucia. Carriacou is the largest of those attached to Grenada. Area, 6913 acres; population (1908), 7660.

**GREY, Earl.** See **CANADA, Government and History.**

**GREY, Sir EDWARD.** See **GREAT BRITAIN.**

**GRIEG, J.** See **LITERATURE, ENGLISH AND AMERICAN, Biography.**

**GRIFFIN, W. H.** See **LITERATURE, ENGLISH AND AMERICAN, Biography.**

**GRIGGS, JAMES MATHEWS.** A Representative in Congress from Georgia, died January 4, 1910. He was born at Lagrange, Ga., in 1861, and was educated in the common schools and at the Peabody Normal College, Nashville, Tenn., from which institution he graduated in 1881. He afterwards taught school, studied law, and was admitted to the bar in 1883. He commenced the practice of law in 1884 at Alapaha, Ga. For a short time he was engaged in the newspaper business. In 1885 he removed to Dawson and in 1888 was elected solicitor-general of the Pataula judicial circuit. He was re-elected in 1892, but resigned in 1893. He was appointed judge of the same circuit and was twice re-elected. He resigned this office in 1896 to enter the contest for Representative to Congress. He was the delegate to the Democratic National Convention, 1892; chairman of the Democratic National Campaign Committee, 1904-6, and was elected to the 55th, and the six following Congresses, including the 61st.

**GRIMSHAW, B.** See **LITERATURE, ENGLISH AND AMERICAN, Travel and Description.**

**GUADELOUPE.** A French colony, composed of islands of the Lesser Antilles: Guadeloupe proper, or Basse-Terre, and Grande-Terre, separated by a narrow channel; Marie Galante, Les Saintes, Desirade, St. Barthelemy and St. Martin. Total area, 687 square miles; population (1906), 190,273. Elementary schools, 113, with 12,182 pupils; secondary, 2, with 728. Capital, Basse-Terre, with 8626 inhabitants; Pointe-à-Pitre (14,861) is the chief port and has a fine harbor. Area under sugar-cane, 27,632 hectares (persons engaged in cultivation, 28,800); coffee, 5138 (7935 persons); cacao, 2540; manioc, 6926. The forests, rich in valuable timber but little worked, cover 71,256 hectares. Bananas, sweet potatoes, tobacco, corn, and vegetables are grown for consumption. Imports and exports (1908), 15,077,000 and 17,361,000 francs respectively. Vessels entered (1907), 376, of 302,632 tons; cleared, 360, of 292,679. The local budget balanced (1908) at 4,692,322 francs. French expenditure (budget of 1910), 371,371 francs. The colony is administered by a governor (1910, M. Gautret).

**GUAM.** See **UNITED STATES.**

**GUARANTEE OF DEPOSITS.** See **BANKS.**

**GUATEMALA.** The most northern and western republic of Central America. The capital is Guatemala City.

**AREA, POPULATION, ETC.** The estimated area

of the 22 departments is 48,300 square miles. Estimated population, 1,992,000. Principal towns, with estimated populations: Guatemala City, 125,000; Cobán, 30,770; Quezaltenango, 28,940; Totonicapán, 28,310; San Pedro, 10,190. For primary instruction, which is free and nominally compulsory, there were in 1908 1330 public schools, with 51,280 pupils. There are a few institutions for secondary, higher, and professional education.

**INDUSTRIES.** Agriculture is the principal occupation of the people. The leading crops are coffee, sugar-cane, corn, bananas, tobacco, and cacao. Cattle raising is important. There is some exploitation of rubber and chicle and of valuable cabinet woods. Mining is but little developed. Manufacturing has not attained importance; but some textiles are produced, and a few breweries, sugar mills, and tanneries are profitably conducted.

**COMMERCE.** Import and export values, in thousands of U. S. dollars, have been as follows:

	1906	1907	1908	1909
Imports .....	7,221	7,817	5,812	5,261
Exports .....	7,186	10,174	6,766	10,079

Principal articles of export, 1909: Coffee, \$8,816,274; hides, \$308,685; timber, \$263,573; bananas, \$229,566; rubber, \$173,626; sugar, \$153,061. Imports from the United States were valued at \$1,745,488; Germany, \$999,648; Great Britain, \$908,334; France, \$218,492.

In 1908, 624 vessels entered, and 602 cleared.

**COMMUNICATIONS.** The total length of railways is about 435 miles. Champerico and San José, on the Pacific, are connected with Guatemala City, the lines aggregating 189 miles. The line from Puerto Barrios, on the eastern coast, to Guatemala City, 195 miles, was opened in 1908. Considerable railway extension is projected. At the end of 1908 there were 3697 miles of telegraph and 384 miles of telephone lines. A year later both systems were reported to aggregate 4196 miles. Post-offices (1908), 281.

**FINANCE.** Revenue and expenditure in thousands of paper pesos have been reported as follows:

	1906	1907	1908	1909
Revenue .....	30,501	35,298	37,336	49,240
Expenditure .....	46,733	44,560	49,930	70,554

The approximate value of the paper peso, in U. S. money, was 9 cents in 1906, 8 cents in 1907, 6½ cents in 1908, and 6 cents in 1909. Over one-half the revenue is derived from customs and one-third from spirits, tobacco, etc. Nearly one-half the expenditure is for the public debt, in 1909, 32,141,454 pesos paper. On December 31, 1908, the total gold debt amounted to \$13,694,445, including \$10,102,465 external 4 per cent. debt of 1895. The latter, whose principal is £1,482,000, amounted, with arrears of interest, to \$10,391,107 (£2,135,232) on December 31, 1909. Currency debt, at end of 1908, 71,884,745 pesos paper.

**ARMY.** There is a small regular army of about 7000 officers and men in which service is compulsory for all not exempted from the 18th to the 25th year. From the 26th year to the 50th a citizen is required to serve in the militia and the enrolled strength is estimated at about 57,000.

**GOVERNMENT.** The executive authority is vested in a president, elected for six years by direct vote and assisted by a cabinet of six members. The National Assembly consists of one chamber (69 members elected for four years by direct vote). The President in 1910 was Manuel Estrada Cabrera, who, as Vice-President, succeeded to the executive office in March, 1898, and subsequently was elected for terms ending March 15, 1905, and March 15, 1911. On April 11, 1910, he was again elected, for the term ending March 15, 1917.

**GUIANA.** See **BRITISH GUIANA**, **DUTCH GUIANA**, **FRENCH GUIANA**.

**GUILD, CURTIS.** See **CHILD LABOR**.

**GUINEA.** See **FRENCH GUINEA**.

**GUNS.** See **BATTLESHIPS**.

**GYMNASTICS.** The twelfth annual inter-collegiate gymnastic meet was won by the Yale team, which scored 20 points. Princeton was second with 16 points and Rutgers third with 8 points. The individual all-round championship went to J. O. Kelly of Pennsylvania, who had a total of 216.2 points. S. Melitzer of Columbia finished second, with 215.25 points, and T. F. Clark of Princeton took third place with 212.15 points. The all-round individual championship of the Amateur Athletic Union was won by Frank Jirasek of the Gymnastic Association Tyrs, Cedar Rapids, Iowa. Jirasek's score was 328.1. William Heiser of the Bohemian Gymnastic Association, New York, finished second with 307.35 points and P. M. Krimmel of the New York Turnverein third with 303.1 points. The club championship for the second successive year was captured by the Bohemian Gymnastic Association, which had a total score of 13. The Gymnastic Association Tyrs and the Washington Heights Y. M. G. A. tied for second place with 11 points each.

**GYROSCOPE.** See **RAILWAYS**, paragraph *Monorail*.

**HABERL, FRANZ XAVER.** A Roman Catholic clergyman and writer on music, died in September, 1910. He was born at Oberellenbach, Lower Bavaria, in 1840. In 1862 he was ordained to the priesthood, and in the same year he was appointed conductor of music at the cathedral of Passau, and musical director of the Catholic seminary of that city. From 1867 to 1870 he was organist of the church of Santa Maria dell' Anima at Rome, and from 1871 to 1882 served in a similar capacity at Ratisbon. In 1875 he founded in that city the celebrated school for church music which, under his management, became one of the leading institutions of its kind. In 1870 he assumed the editorship of a periodical entitled *Musica Sacra*. He was also chief editor of the works of Palestrina. He published a practical text-book on the Roman Catholic choral music and made a reputation by his investigations in the field of old Roman Catholic music. These investigations made him one of the most noted authorities on ecclesiastical music. In 1887 he was made a Doctor of Theology by the University of Würzburg.

**HABIT.** See **PSYCHOLOGY**.

**HACKWOOD, F. W.** See **LITERATURE**, **ENGLISH AND AMERICAN, History**.

**HADEN, Sir FRANCIS SEYMOUR.** An English etcher, died May, 1910. He was born in 1818 and was educated in the University College, London, and in the medical schools of Paris and Grenoble. From 1851 to 1867 he was honorary surgeon in the department of

science and art. When forty years of age he turned his attention to art, and especially to etching. He won the Grand Prix in Paris in 1900. He became an expert etcher and wrote much on that branch of art. Among his published works are *Rembrandt, True and False*; *About Etching* (1879), and *The Etched Work of Rembrandt* (1879). Among his most notable plates were "The Breaking up of the Agamemnon" and "Calais Pier," under Turner, both of which were shown in the Centennial Exhibition at Philadelphia. He was an honorary member of several societies related to art in France.

**HAGGARD, H. RIDER.** See LITERATURE, ENGLISH AND AMERICAN, *Philosophy and Religion*.

**HAGUE CONFERENCE.** See ARBITRATION, INTERNATIONAL.

**HAITI.** A West Indian republic occupying the western and smaller portion of the island of Haiti. The capital is Port-au-Prince.

**AREA AND POPULATION.** The area is estimated at about 10,200 square miles. A recent estimate for 1908, based on parish registers, places the population at 2,079,700. About nine-tenths of the inhabitants are negroes, and almost all of the rest mulattoes. The principal towns, with estimated population, are: Port-au-Prince, about 100,000; Cape Haiti, 30,000; Les Cayes, 25,000; Gonaives, 18,000. The educational system is very imperfect. The prevailing religion is Roman Catholicism.

**INDUSTRIES.** Agriculture is the chief occupation of the people. The leading crop is coffee, but its production is hindered by large export duties. Sugar-cane, cacao, and cotton culture are of some importance. Various valuable woods are cut for export, logwood being the most important. Mining is almost wholly undeveloped. There are a few manufactures, including soap, candles, matches, and shoes; rum and other spirits are distilled.

**COMMERCE.** Imports and exports for years ended September 30: 1908, \$4,701,161 and \$3,478,848 respectively; 1909, \$5,880,676 and \$3,479,848. The leading exports are coffee, cacao, and logwood. Of the imports in the fiscal year 1909, the value of \$4,271,046 came from the United States, \$644,315 from France, \$586,190 from Great Britain, and \$196,886 from Germany. France receives the greater part of the exports, with Germany in second place.

**COMMUNICATIONS.** There are reported about 64 miles of railway. Several new lines and extensions are projected. Telegraph line, 124 miles. Post-offices, 31.

**FINANCE.** Revenue is derived chiefly from import and export duties; the largest item of expenditure is service of the debt. For fiscal years ending September 30, estimated revenue: 1908, \$3,875,612 (United States money) and 4,366,156 gourdes (the paper gourde is worth about 20 cents); 1909, \$2,760,887 and 7,408,542 gourdes; 1910, \$3,329,010 and 8,300,581 gourdes; estimated expenditure: 1908, \$2,651,249 and 6,885,660 gourdes; 1909, \$2,777,688 and 7,283,953 gourdes; 1910, \$3,329,010 and 8,246,842 gourdes. Public debt, March 31, 1910, \$26,336,794 and 17,309,590 gourdes.

**ARMY.** The army is recruited by conscription and by voluntary enlistment, the conscripts serving for 7 years and the volunteers for a term of 4 years. There are troops of the guard, including 1 regiment of artillery, 300 men; 4

regiments of infantry, 1300 men; 2 battalions of chasseurs, 300 men; 1 regiment of cavalry, 187 men; and 2 battalions of riflemen. In the line are 2 regiments of artillery with 300 men, 33 regiments of infantry with 9361 men, and 50 companies of gendarmes, numbering 2000 men. The combined forces aggregate about 14,000 men, but the strength varies greatly from time to time.

The navy includes three gunboats.

**GOVERNMENT.** The executive authority is vested in a president, elected for seven years by the National Assembly and assisted by six cabinet ministers. The Assembly consists of the Senate (39 members) and the Chamber of Representatives (96). The President in 1910 was Gen. Antoine F. C. Simon, who was elected December 17, 1908, after the deposition of Gen. Nord Alexis.

A revolutionary plot was formed in April to overthrow General Simon and make General Firmin President, but it was discovered in time and a number of the conspirators were imprisoned. At the same time, General Nord Alexis (q. v.), who had been supplying the funds for the revolution, died. The Senate authorized the creation of a bank for the loan which was negotiated in Paris of \$16,000,000. In July the government contracted with an American syndicate for the building of a railway from the interior to four seaports, granting the company a strip of land twelve miles wide on each side of the line.

**HAKKI PASHA.** See TURKEY.

**HALDANE, RICHARD BURTON.** See GREAT BRITAIN, *Government*.

**HALE, EUGENE.** See MAINE, *Politics and Government*.

**HALE, M.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**HALE, SUSAN.** An American artist and writer, died September 17, 1910. She was born in Boston in 1833, the daughter of Nathan Hale and sister of Edward Everett Hale. She was educated at private schools. For a time she taught, but later turned her attention to painting. Her work in water colors and landscapes was exhibited in Boston and New York. She was the author of *Life and Letters of Thomas Gold Appleton*, and with her brother the *Family Flight* series of travels for young people.

**HALEY, THOMAS.** See BOWLING.

**HALFORD, ALBERT JAMES.** An American journalist, died April 17, 1910. He was born at Hamilton, Ohio, and was educated in the common schools. He learned the printer's trade in early youth and at the age of fifteen reported proceedings in the Indiana legislature. He began newspaper work for the *Indianapolis News* and filled various positions until he became managing editor. In 1888 he went to Washington as managing editor of the *Post*. For several years he was editor of the *Congressional Directory* and filled important positions in newspaper work, mainly as a reporter of Congressional proceedings. He was a brother of Major Elijah W. Halford, who was private secretary to President Harrison.

**HALL, GERTRUDE.** See LITERATURE, ENGLISH AND AMERICAN, *Poetry and Drama*.

**HALLBERG, CARL SAVANTÉ NICANOR.** An American pharmacist and publicist, died October 22, 1910. He was born at Helsingfors, Finland, in 1856, and was educated at the gym-

nasium in that city, graduating in 1869. In the latter year he removed to the United States, graduating from the Philadelphia College of Pharmacy in 1876. From 1890 to the time of his death he was professor of pharmacy in the University of Illinois and from 1894 to 1896 was professor of pharmacology at the Illinois Medical College. He organized in 1885 and became director of the National Institute of Pharmacy, a system of home study in pharmaceutical sciences. He was a member of the National Commission for the revision of the National Formulary in 1886, 1895 and 1906 and was a member of the National Commission for the revision of the United States Pharmacopœia, 1890-1900 and 1900-1910. From 1883 to 1893 he was editor of the *Western Druggist* and from 1906 to the time of his death was editor of the *Bulletin of the American Pharmaceutical Association*.

**HALLERITE.** See MINERALOGY.

**HALLEY'S COMET.** See ASTRONOMY.

**HALL OF FAME.** See NEW YORK UNIVERSITY.

**HAM.** See MEAT AND MEAT INSPECTION.

**HAMBOURG, BORIS.** See MUSIC.

**HAMBURG.** See GERMANY.

**HAMDI BEY, OSMAN.** A Turkish statesman and scholar, died in March, 1910. He was born in Constantinople, the son of Edhem Pasha. From 1868 to 1870 he was governor of Bagdad and was a delegate to the Vienna Exposition in 1873. He was made General Secretary of Foreign Affairs and afterwards governor of Pera. In 1882 he was appointed director of the Imperial Museums at Stamboul and in 1888 he was connected with the Department of the National Debt. He was a painter of some ability, and in 1882 he founded a Turkish school of art. He edited with Reinach *La nécropole royale de Sidon* (1892-93). He built at his own expense in Constantinople a Greek building in which the sarcophagi from the Sidon Necropolis might rest.

**HAMILTON, ALLAN McLANE.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**HAMILTON, CHARLES K.** See AERONAUTICS.

**HAMILTON, J. J.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**HAMILTON COLLEGE.** An institution of higher learning at Clinton, N. Y., founded in 1812. The number of students during the year 1909-10 was 186, and the faculty numbered 19. There were no notable changes in the faculty during the year and no noteworthy benefactions were received. The productive funds of the college in 1910 amounted to \$900,000. The library contains about 50,000 books. The president is M. W. Stryker, D. D., LL. D.

**HAMMOND, EDWARD PAYSON.** An American evangelist, died August 14, 1910. He was born at Ellington, Conn., in 1831, and graduated at Williams College in 1858. He studied theology at the Union Theological Seminary, N. Y., and at the Free Church Seminary, Edinburgh. He was ordained to the Presbyterian ministry in 1863 and engaged in evangelical work in the United States, Canada and Great Britain, meeting with remarkable success. He was the author of *Golden Evening*; *What I saw from Vesuvius*; *Roger's Travels*; *Early Conversion*; and many other books, besides hymns and tracts for use in his work.

**HAMPTON NORMAL AND AGRICULTURAL INSTITUTE.** An institution at Hampton, Va., founded in 1868 by General Chapman Armstrong for the practical education of the children of ex-slaves. In 1870 it was chartered by a special act of the General Assembly of Virginia. The institution in 1878 opened its doors to Indian pupils. The enrollment in the year 1910-11 was 1374. The faculty and other instructors, officers and employes numbered 191. The productive funds of the institute amounted to \$2,278,822. The principal is Hollis B. Frissell.

**HANDEL-MAZETTI, ENRICA.** See GERMAN LITERATURE.

**HANFORD, BENJAMIN.** An American Socialist, died January 24, 1910. He was born at Cleveland, O., in 1869, and was educated in the public schools. He worked as a compositor and in 1879 went to Chicago and became interested in labor unions. He afterwards removed to Philadelphia and became prominent in labor movements in that city. Just before the Spanish War he removed to New York City and worked as a compositor on various papers. He was the Socialist Labor candidate for governor of the State in 1898. When this party split Hanford was the leader of the secessionists, who formed the Social Democratic party, and he was several times nominated for office—in 1900 for governor, in 1901 for mayor, in 1902 for governor again, and in 1904-8 for vice-president of the United States. He wrote a pamphlet on the labor war in Colorado, and in his later years wrote editorials for *The Call*, a New York Socialist paper.

**HANKOW-SZECHUAN RAILWAY.** See CHINA, *History*, and UNITED STATES, *Foreign Relations*.

**HANNAY, JAMES.** A Canadian historian and journalist, died January 12, 1910. He was born in 1843. For many years he was engaged in editing various newspapers in Canada, writing in the meantime many important historical works. He was also a contributor of fiction and verse to magazines and newspapers, and he edited the reports of the Supreme Court of New Brunswick in two volumes. From 1905 till his death he was employed in the Archives Department of the Canadian government. Among his published works are: *History of the War of 1812*; *History of Acadia*; *Nine Years a Captive*; *The Story of the One Hundred and Fourth Regiment*; *The Story of the Queen's Rangers in the American Revolution*; *The History of the Loyalists*; *New Brunswick: Its Resources and Advantages*; a *History of New Brunswick*, and *New Brunswick Year Book*.

**HANTZCH'S THEORY.** See CHEMISTRY, *Color of Dyestuffs*.

**HAPGOOD, HUTCHINS.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**HARBORS.** See DOCKS AND HARBORS.

**HARCOURT, LEWIS VERNON.** See GREAT BRITAIN, *Government*.

**HARDIE, J. KEIR.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**HARDMAN, W.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**HARDPAN.** See DRAINAGE.

**HARE, CHRISTOPHER.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**HARING, C. H.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**HARLAND, MARION.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**HARMON, JUDSON.** See OHIO.

**HARRINGTON, TIMOTHY.** An English public official, member of Parliament from the Harbor Division, Dublin, died March 12, 1910. He was born in 1851 and educated at the Catholic University and Trinity College, Dublin. He was a barrister by profession and was at one time proprietor of the *Kerry Sentinel* and *United Ireland*. He was elected to Parliament to represent Westmeath in 1883, and from 1885 to the time of his death represented the Harbor Division of Dublin. In 1888-9 he was counsel for Mr. Parnell at special commission. In 1901-2-3 he was Lord Mayor of Dublin. For a time he was secretary of the Irish National League.

**HARRIOTT, C.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**HARRIS, C.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**HARRISON, CHARLES CUSTIS.** An American educator, retired 1910, as provost of the University of Pennsylvania. He was born in Philadelphia in 1844, and graduated at the University of Pennsylvania in 1862. From 1863 to 1892 he was in active business as a manufacturer. He had been a trustee of the university since 1876 and in 1894 was acting provost. In the latter year he was elected provost. During his administration the university developed until it became one of the leading institutions of higher learning in the United States.

**HARTMAN, S.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**HARVARD UNIVERSITY.** An institution of higher learning at Cambridge, Mass., founded in 1636. The total attendance in the University in the year 1910-11 was 5028, divided among the various departments as follows: Faculty of Arts and Sciences, 2217; Graduate School of Arts and Sciences, 463; Graduate School of Business Administration, 72; Divinity School, 52; Law School, 802; Medical School, 278; Dental School, 116; University Extension, including summer school of 1910, 1106. The faculty numbered 634, distributed as follows: Professors, 127; Associate Professors, 4; Assistant Professors, 83; Lecturers, 38; Instructors, 178; Austin Teaching Fellows, 33; Teaching Fellows and Fellows for Research, 13; Demonstrators and Assistants, 158.

The year 1910 was the first year of the administration of President Abbott Lawrence Lowell who succeeded Charles W. Eliot. President Lowell in his first annual report pointed out the importance of the establishment of a series of freshmen dormitories and dining halls. He said that these would make possible a closer supervision and a more direct influence over the entering class, without vexatious regulation. In regard to athletics he called attention to the report of Dean Briggs, as Chairman of the Athletic Committee, in which the latter criticised the extravagance and luxury in the management of athletics, the training tables, and the general treatment of members of the teams.

Among the notable gifts of the year were the following: From James R. Rich, \$20,000; from the Duke and Duchess d'Aosta, \$20,000; from Adolphus Busch, \$100,000, and by will of Alexander Agassiz, \$200,000. The total funds of the University at the end of the year 1910 amounted to \$23,482,736. The total income was \$2,024,440. There was an excess of expenditures over income at the end of the year of \$194,821.

In Radcliffe College, which is the women's department of the University, there were in 1910-11 489 students. There were in the University library on July 1, 1910, 1,425,891 books and pamphlets. The President is Abbott Lawrence Lowell.

The activities of the University have recently been widened in scope by the establishment of three new degrees, Doctor of Law, Doctor of Public Health, and Associate in Arts; and the relations between Harvard College and secondary schools have been changed by the establishment of a new plan of administration. The degree of Doctor of Law is to be conferred upon all persons who, having already received a degree in Arts or Sciences, and having completed the requirements for the degree of Bachelor of Laws in Harvard University, accomplish one additional year of work under the regulations of the Faculty of Law, or who, having already received a degree in Arts or Sciences, and having been graduated from any other law school approved for this purpose, accomplish the work of two additional years under the regulations of the Faculty of Law. The degree of Doctor of Public Health is to be conferred upon persons who have received the degree of M. D. or who are otherwise properly qualified and who spend not less than one year upon work on a special subject and present a thesis containing some original research acceptable to the Faculty of Medicine. The degree of Associate in Arts is conferred upon non-resident students who have attended the class exercises, completed the other work, and passed the examinations in Extension courses (including Summer courses) equal in number and standard to the courses required of a resident student for the degree of Bachelor of Arts. No entrance examination is required for this degree. The new plan of admission to Harvard College is intended to connect the College more closely with public high schools, and to provide a better means of selecting for the College students of good quality. The main features of this plan are (1) an approved school course satisfactorily completed and (2) satisfactory examinations in a few subjects to test the student's quality according to College standards.

**HASBROUCK, HENRY CORNELIUS.** An American soldier, died December 17, 1910. He was born in Newburg, N. Y., in 1839, and graduated from the United States Military Academy in 1861. He was appointed second lieutenant in the fourth artillery in the same year and served throughout the Civil War, rising to the rank of captain. He was appointed major in 1887, lieutenant-colonel in 1896 and brigadier-general of United States volunteers in 1898. In 1902 he was made brigadier-general and retired. He took part in campaigns against the Indians and was prominent in the Modoc expedition. He served throughout the Spanish War as brigadier-general of volunteers. From 1882 to 1888 he was commandant of cadets at the United States Military Academy. He was a member of the commission selected from the service in 1888 to prepare a system of tactics for the United States Army.

**HAUPT, ERICH.** A German Protestant theologian, died February, 1910. He was born in Stralsund in 1841 and was educated in Berlin. He was professor of New Testament exegesis successively at Kiel (1878), Griefswald (1883) and Halle (1888). Among his published writings are the following: *Der erste Brief des*

*Johannes* (1869); *Die alttestamentlichen Citate in den vier Evangelien* (1871); *Die Kirche und die theologische Lehrfreiheit* (1881); *Plus ultra, zur Universitätsfrage* (2d ed., 1890); *Die Bedeutung der heiligen Schrift für den evangelischen Christen* (1891); *Zum Verständnis des Apostolats im Neuen Testament* (1898), etc.

**HAUPTMANN, GERHART.** See GERMAN LITERATURE.

**HAUPTMANN, PAUL.** See GERMAN LITERATURE.

**HAWAII** or **HAWAIIAN ISLANDS.** A Territory of the United States which comprises a chain of islands in the Pacific Ocean, forming the extreme northern group of Polynesia. The capital is Honolulu on the island of Oahu, 2100 miles from San Francisco, 4803 miles from Manila and 3850 miles from Salina Cruz, the Mexican Pacific terminus of the Tehuantepec Railroad.

**AREA AND POPULATION.** The total area of the Islands is 6449 square miles, and the area of the inhabited islands is as follows: Hawaii, 4015 square miles; Maui, 728 square miles; Kahulawe, 69; Molokai, 261; Lanai, 133; Oahu, 600; Kauai, 544; and Niihau, 97. The population of the Islands in 1910 according to the Thirteenth Census was 191,909, as compared with 154,001 in 1900. The racial division of the population is as follows: Hawaiians, 26,099; Part-Hawaiians, 12,485; Portuguese, 22,294; Spanish, 1962; Porto Ricans, 4828; other Caucasians, 14,684; Chinese, 21,698; Japanese, 79,663; all others, 8196. While the largest single increase in the population is among the Japanese, the total increase in Orientals in the Islands is less absolutely and in percentage than non-Orientals. The number under "all others" is made up chiefly of Koreans and Filipinos. The net increase in the entire population was 37,908 or 24.62 per cent. The population of the city of Honolulu is about 50,000, as compared with 39,300 in 1900.

**AGRICULTURE.** The chief industries of the Islands are related to agriculture, but the condition is such, owing to lack of knowledge of practical agriculture, distance from the world's markets, tariffs and other causes, that up to the present time only a few products have been produced on a sufficient scale to export any considerable quantities. A scientific study has been made in recent years, however, and marked progress has been made in knowledge of possible crops and methods of cultivation. This is especially true of the sugar industry, in which scientific cultivation has resulted in a large crop. The sugar production for the year ending September 30, 1910, was 518,127 short tons as compared with 535,156 short tons in 1909. The exports of sugar for the fiscal year were valued at \$42,625,474 as compared with a value of \$37,632,758 for the production of 1909. During 1910 the sugar planters brought in 2651 Filipinos, including 2441 men, 179 women and 31 children. The percentage of non-Asiatic laborers has increased from 19 per cent. in 1908 to 24 per cent. in 1910. On March 31, 1910, the laborers on sugar plantations aggregated 44,048, of whom the Japanese numbered 28,832. Rice is the second crop in value and it is consumed mostly in the Territory. It is raised chiefly by Chinese in terraces flooded with water on the low lands which are leased at rentals of from \$10 to \$50 per acre. There is little additional land available for this crop, but there is

much room for improvement in the method of cultivation. These improvements are now being made, chiefly as the result of the work of the Federal experiment station. The present yield is about 2½ tons per acre per annum (2 crops). The cultivation of coffee began on the Islands as early as 1817 and was at one time conducted largely by Americans. Owing to low prices it has now fallen largely into the hands of Japanese. The output varies from year to year and is never large. The crop in 1910 was about 2000 tons, a large part of which is consumed in the Territory. There are probably not more than 10,000 acres under cultivation.

Among the newer industries pineapple-growing has made the greatest progress, the output having increased from 1200 cases of two dozen cans each in 1900 to 510,000 cases in 1909. In 1910 there were invested in the industry more than \$2,000,000 and about 6000 acres were under cultivation. About 1600 tons of fresh fruit were exported during the year, but practically without profit, owing to imperfect marketing arrangements. The most marked feature in this industry during the year was the organization of a company to put up in attractive bottles the pure juice in much the same manner as grape juice.

The tobacco and cotton industries are the newest among the agricultural industries that promise to have a large growth. The tobacco industry is the more advanced of the two. There are now four plantations on the island of Hawaii, two in the District of Kona, one in Hamakua, and one in Hilo. In this industry about \$100,000 has been invested. The companies purchase crops from small planters for curing purposes besides raising crops of their own. The yield runs from 700 to 1400 pounds per acre and under favorable conditions two crops may be raised a year. The quality is good. The principal varieties of cotton are the Sea Island, Caravonica and Egyptian. The production is heavy and the quality superior.

**COMMERCE.** The imports and exports for the year ended June 30, 1910, exclusive of specie, aggregated \$71,624,659, an increase of \$9,678,175 over the aggregate of the previous year. The imports amounted to \$25,138,247, an increase of \$3,713,267 over the aggregate of the previous year. The exports amounted to \$46,486,412, an increase of \$5,964,908. A detailed statement of the exports and imports to and from various countries will be shown in the table on the following page.

Of the exports sugar continued to form about 90 per cent., but several minor products show increases. The exports of fruit and nuts increased from \$803,376 in 1908 to \$1,457,644 in 1909 and \$1,794,001 in 1910. The exports of coffee increased from \$174,216 in 1908 to \$238,083 in 1909 and \$330,228 in 1910. The marked increase in imports from as well as exports to continental United States, which has been manifested in recent years, continued. During the last six years these imports have steadily increased from \$11,703,519 to \$20,531,913.

There has been a steady increase in recent years in the tonnage of vessels entered and cleared. In the harbors of the Islands in 1910 the tonnage entered amounted to 1,308,801, an increase of 149,683, and the tonnage cleared amounted to 1,292,875, an increase of 133,126, which is exclusive of vessels engaged in inter-island traffic and vessels in the military and

## IMPORTS AND EXPORTS BY COUNTRIES, FISCAL YEARS 1909 AND 1910

Country	Imports		Exports	
	1909	1910	1909	1910
Australia .....	\$315,502	\$277,405	\$7,054	\$15,539
Other British Oceania .....	63,214	110,007	5,554	4,996
British India .....	600,230	519,429	.....	.....
Canada .....	17,467	18,675	35,383	15,136
Chile .....	385,104	569,139	.....	.....
France .....	14,392	23,029	25	80
Germany .....	272,243	312,740	3,794	19,093
Hongkong .....	279,749	281,231	2,934	4,769
Japan .....	1,722,796	1,856,376	15,011	220,119
United Kingdom .....	303,089	455,730	2,583	1,355
Other foreign .....	59,788	182,573	11,814	21,076
Total foreign .....	4,033,574	4,606,334	84,152	302,763
United States .....	17,391,406	20,531,913	40,437,352	46,153,649
Grand total .....	21,424,980	25,138,247	40,521,504	46,456,412

naval service. For many years past, even before annexation, commerce with Hawaii has been mostly in American vessels. During 1910 about 96 per cent. of the freight was carried in American bottoms.

**TRANSPORTATION.** The question of transportation facilities both by sea and land is of the greatest importance to the development of the Islands. Many improvements were made during 1910. Between Hawaii and the mainland, one large steamer designed for perishable goods as well as for passengers and general freight, and said to be the largest vessel built in the United States during the year, was added by one large company, and a smaller passenger and freight steamer was replaced by a larger one by another company. On account of tourist travel and traffic in perishable goods, however, there is still a marked shortage in the required facilities. The Federal government has done important work on the harbors at Honolulu and Hilo and other work is to be undertaken soon. Negotiations are in progress for the construction of a wharf that will accommodate the largest steamers under the lee of the partially constructed breakwater at Hilo.

The most extensive railroad in the Territory is that of the Oahu Railway and Land Company in the island of Oahu. This road has 98.47 miles of main line and branches. During 1910 it carried 617,719 passengers, an increase of 123,232 over the number for 1909, and 531,751 tons of freight, an increase of 115,691. This road connects with over 100 miles of plantation railways along its line. There are shorter railroads in the islands of Hawaii, Maui, and Kauai. The only street railway in the Islands is at Honolulu. This is a single-track, electric line and is exceptionally well equipped and well conducted. It has a little over 22 miles of track. In 1909 this line carried 8,269,652 passengers.

**PUBLIC LANDS.** The public lands in the Islands comprise about 1,700,000 acres. Much of this, however, is so high and so precipitous and so recently formed by volcanic action, or so dry and rocky or otherwise unsuitable for marketable crops, that comparatively little is arable in its natural condition and in the present state of knowledge. Several important changes in the administration of the lands of the Territory were made by Act of Congress, approved May 27, 1910. These amendments provided for the consolidation of the administration of public lands in one department, and made provision also for the transfer of land for forestry or other public purposes. The most important

amendment, however, related to homesteading. This is aimed to prevent the taking up of land, ostensibly for homesteading, but really for speculation or investment. The land disposed of for homestead purposes in 1910 amounted to 2264 acres.

**EDUCATION.** The public schools of the Islands are under the Territorial Department of Public Instruction, consisting of a superintendent and six commissioners appointed by the governor from the four principal islands. The enrollment of all the schools in the Territory in 1910 was 25,537, an increase of 648 for the year. In the public schools were 19,909, an increase of 402; in private schools, 5628, an increase of 246. The teachers numbered 486 in the public schools, a decrease of 7; 266 in private schools, a decrease of 3. In the Territory are 152 public schools, a decrease of 1; and 55 private schools, a decrease of 1. The largest increase in all schools, 663, was in the Japanese pupils. This has been true for several years past. The pupils of this race have increased during ten years from 1352 to 7078. They now comprise 27.72 per cent. of the pupils. Next in order are the Portuguese, followed by Hawaiians, Part-Hawaiians and Chinese. Industrial training forms an important part of education, and this embraces agriculture, woodwork, printing and domestic science.

**FINANCE.** The bonded debt of the Territory at the beginning of the fiscal year 1910 was \$3,959,000, which was increased during the year by an issue of \$200,000 of 3½ per cent. bonds, and decreased by the payment of \$80,000 of the 1903 issue of 4 per cent. bonds, leaving a total bonded indebtedness of \$4,079,000 at the close of the fiscal year. The receipts for the year were \$3,641,245, an increase of \$589,718 over the amount of the receipts for 1909. The expenditures were \$3,264,364, an increase of \$329,380 over the expenditures of the previous year. The receipts exceeded the expenditures by \$260,338, as compared with an excess in 1909 of \$116,542. The receipts were increased mainly by an additional and special income tax and by a large increase in the inheritance tax. The expenditures were increased mainly by the expenditures for immigration and by a large increase in payments to counties. The principal receipts were from taxation, \$2,726,650, land revenues, \$264,933, harbor, wharf and pilot revenues, \$74,836, and Honolulu water and sewer revenues, \$184,277. The expenditures were for public instruction, \$434,423, and for the public health department, \$325,555.

**IMMIGRATION AND LABOR.** From June 14, 1900, to June 30, 1910, there arrived in the

Islands 77,421 Japanese, and there departed in the same period 75,186, leaving a net gain of immigrants of 2235. Of Chinese there arrived in the same period 3580 and departed, 13,918. There arrived in this period 7602 Koreans, and departed 2280. The total arrival of Orientals in the period was 88,603 and the total departures were 91,384.

Attempts have been made to induce immigrants from Madeira and the Azores, but as the inducements were found insufficient, attention was turned to Russians in Siberia and Manchuria. In October, 1909, 255 Russians were introduced into the Islands. These proved so satisfactory and the need of additional laborers was so great that 1535 more were introduced in February, March, April and May, 1910. The Russians are probably the best immigrants ever brought to Hawaii and rank higher than most of the immigrants from Europe to the eastern States. The strike on the island of Oahu, involving 7000 Japanese laborers, which began before the close of the fiscal year 1909, ended early during the fiscal year 1910. Several Japanese who were mainly responsible for this strike, but who were not laborers themselves, were convicted of conspiracy and imprisoned. They have since been pardoned and the relations between Japanese generally and their employers were very satisfactory at the end of the year.

**POLITICS AND GOVERNMENT.** The Act of Congress, approved May 27, 1910, referred to above, amended the organic Act of the Territory. It provided for increases in the salaries of a number of the executive and judicial officers, and members of the legislature; it settled doubts as to the applicability of various Federal laws to Hawaii by providing that such laws, which purport to relate to all Territories, shall not apply to this Territory, the provisions of its organic Act being deemed sufficient; it settled doubts also as to the powers of the legislature with reference to appropriations and also to the validity of numerous naturalization laws made by the circuit courts; it improved in several respects the law relating to the disqualification of judges; it authorized the restoration to the Territory of land set aside, but no longer needed for Federal purposes. The principal features of the Act, however, are the provisions making changes in the land laws (see *Public Lands*, above).

As a result of the failure of Congress to enact a prohibition law for the Territory, largely in consequence of opposition from the Territory itself, there was substituted for the bill a joint resolution providing for a referendum to the voters of the Territory upon the question whether the Territorial legislature should enact a prohibitory law at its next session. This resolution was approved April 26, 1910, and the election was held July 26, 1910. Of the 13,274 registered voters, 9773 participated in the election, and of these 2262 voted for the prohibitory law and 7511 voted against it. While the vote was influenced by many considerations, not the least was the fact that the Territory has an exceptionally good high-license law.

The intention of the War Department to make large expenditures for fortifications in Hawaii is regarded with great satisfaction by the citizens of the Territory. Progress has already been made in the construction of military defenses in the island of Oahu. At Pearl Harbor the widening, deepening and straightening of

the long entrance channel has proceeded rapidly during the year and Congress has provided for the continuation of the work. Army transports call regularly on their voyages to and from the Philippines and not only many American vessels, but also British, German, French, Italian, Dutch, Portuguese and Japanese naval vessels have called at Honolulu during 1910.

**OFFICERS:** Executive: W. F. Frear, Governor; E. A. Mott-Smith, Secretary; A. Lindsay, Jr., Attorney-General; D. L. Conkling, Treasurer; M. Campbell, Superintendent of Public Works, Commissioner of Public Lands, Surveyor; W. T. Pope, Superintendent of Public Instruction; J. H. Fisher, Auditor; E. A. Mott-Smith, President Board of Health. Delegate to Congress, J. K. Kalaniana'ole. Judicial, A. S. Hartwell, Chief Justice, Supreme Court; A. Perry, Associate Justice, Supreme Court; J. T. De Bolt, Associate Justice, Supreme Court; H. Smith, Clerk, Judiciary Department; H. E. Cooper, First Judge, First Circuit; W. L. Whitney, Second Judge, First Circuit; W. J. Robinson, Third Judge, First Circuit; S. B. Kingsbury, Judge, Second Circuit, Wailuku, Maui; J. A. Matthewman, Judge, Third Circuit, Kailua, Hawaii; C. F. Parsons, Judge, Fourth Circuit, Hilo, Hawaii; J. Hardy, Judge, Fifth Circuit, Lihue, Kauai.

**HAWES, C. H.** See **LITERATURE, ENGLISH AND AMERICAN, History.**

**HAWES, H. A.** See **LITERATURE, ENGLISH AND AMERICAN, History.**

**HAWKE, JAMES ALBERT.** Rear-admiral, retired, of the United States Navy, died July 26, 1910. He was born at Bristol, Pa., in 1841, and received a medical education at the University of Pennsylvania. He served as assistant surgeon in the Civil War and was appointed assistant surgeon in the United States Navy in 1867. He was promoted to passed assistant surgeon in 1873, and made surgeon in 1879, medical inspector in 1895, medical director in 1899, and was retired in 1903 with the rank of rear-admiral for services during the Civil War. From 1890-93 he was in charge of the naval hospital at Widows Island and from 1900 to 1903 was in charge of the naval hospital at Mare Island, California.

**HAWKINS, HAMILTON SMITH.** An American army officer, died March 27, 1910. He was born at Fort Moultrie, S. C., in 1834, and was educated at the United States Military Academy, graduating in 1854. In 1861 he was appointed second lieutenant in the sixth infantry and shortly afterward was made first lieutenant. He became a captain in 1863 and served throughout the Civil War. He received a severe wound in the head at Fredericksburg, but insisted on returning to the front before his wound was fairly healed. From 1888 until 1892 he served as commandant of cadets at the United States Military Academy and in 1894 he was made commandant of the Infantry and Cavalry School, in which position he served until 1898. In the Spanish-American War he served as brigadier-general of volunteers of the fifth army corps and commanded the first brigade of General Kent's division. At the battle of San Juan he distinguished himself by heroic conduct, leading a charge of the sixth cavalry and 16th infantry, which resulted in dislodging the Spanish troops from a blockhouse on the summit of a hill. In this he was wounded. In September, 1898, he was made a brigadier-general in the

regular army and six days later was retired at his own request, having served in the army for forty years. For seven years prior to his death he was governor of the Soldiers' Home in Washington, D. C.

**HAY.** The hay production of the United States in 1910 was below the normal crop. The average yield per acre was estimated at 1.33 tons, as compared with 1.42 tons per acre the year before, and the lowest since 1901. The crop shortage was especially marked in the States of the northwestern Mississippi Valley, which suffered severely from dry weather at the time the grass most needed moisture for its growth. This was very evident from the low yield per acre secured in most States of this section. North Dakota produced only .55 ton and South Dakota .80 ton per acre, while Minnesota, Wisconsin and Nebraska each produced one ton and Iowa 1.05 tons per acre. The highest acre yields were, of course, obtained in the irrigated regions, which was due not only to the moisture supply, but also to the fact that alfalfa is largely grown. The total production of hay for the year was estimated at 80,978,000 tons, as compared with 64,938,000 tons the year before. The value of the crop of 1910, based on the price per ton on December 1, was \$747,769,000, while the larger crop of 1909 on the corresponding basis was only \$689,345,000. The value of the hay crop in 1910 was greater than the value of wheat produced and was the highest on record. The value of the crop was 17 per cent. above the average of the preceding five years, and the quantity of the crop was 3.6 per cent. below it. The yields of the principal hay-producing States were as follows: New York produced 6,351,000 tons on 4,811,000 acres; Pennsylvania, 4,443,000 tons on 3,212,000 acres; Ohio, 3,948,000 tons on 2,840,000 acres; Iowa, 3,780,000 tons on 3,600,000 acres; Illinois, 3,717,000 tons on 2,795,000 acres; Missouri, 3,510,000 tons on 2,700,000 acres, and Michigan, 3,370,000 tons on 2,592,000 acres. All other States produced less than 3 million tons. The relative geographic distribution of the hay crop has changed quite perceptibly since 1889. According to the report of the Secretary of Agriculture, the North Atlantic States have increased their share of the crop during the past 21 years from 24.3 to 27.8 per cent.; the Western States from 7.9 to 16.4 per cent.; the South Atlantic from 3.1 to 3.9 per cent.; the South Central from 3.3 to 5.3 per cent.; the two Southern groups of States from 6.4 to 9.7 per cent.; and the North Central States decreased their share from 61.4 to 46.1 per cent.

**HAYES, CHARLES HARRIS.** An American theologian and educator, died August 17, 1910. He was born in Newark, N. J., in 1868. He received his early education in Newark and graduated from Columbia University in 1890. He studied theology at the General Theological Seminary and graduated in 1894. He studied also at the universities of Berlin, Oxford and Halle. He was ordained a priest of the Protestant Episcopal Church in 1896 and from that year to 1900 was a member of the staff of St. Mark's Pro-Cathedral in Washington. In 1900-1 he was chaplain to the Bishop of Maine. In the latter year he was made associate professor of philosophy in Trinity College and from 1902 to the time of his death was professor of Christian Apologetics in the General Theological Seminary. He was the author of *Bible Lessons on the Creed* (1906).

**HAYES, REPRESENTATIVE.** See UNITED STATES, Congress.

**HAYNES, JOHN HENRY.** An American archaeologist, died June 28, 1910. He was born in Rowe, Mass., and graduated from Williams College in 1876. He later taught school for several years in Massachusetts. He accepted an offer from W. J. Stillman, correspondent of the *London Times*, to accompany him on an expedition to Crete, which resulted in his leaving the profession of a teacher and branching into what became his life-work. He went with the American expedition to Assos and was for three years tutor in Roberts College, Constantinople. In 1884 he was sent as manager of the Wolfe expedition to Babylonia, which continued for a year, and he then went to the Central Turkey College at Amtal, where he remained as a teacher and treasurer of that institution until 1888. In that year he accompanied the expedition sent out under the direction of the University of Pennsylvania to make explorations in Babylonia. He also accompanied a second expedition under the same auspices and assumed charge of expeditions in 1892 and 1898. The time between these periods he spent as United States consul at Bagdad. Dr. Haynes' discoveries in Babylon were of great importance. He was the first man to stay through the Babylonian summer at work in the trenches by day and by night, developing photographs or carefully packing and guarding the thousands of utensils and tablets that were recovered under his direction. He found the oldest arch known to the world, about 4000 B. C., literary records of the life of 6000 years ago and many other records of great value. For three years, during the fourth expedition under his management, with the exception of a few months, he lived alone, without seeing a white face, in the midst of warlike tribes. The later years of his life were saddened by discredit thrown upon his work by Dr. Hermann V. Hilprecht of the University of Pennsylvania. For ten years previous to his death he did no scientific work, but held a position in the Internal Revenue Department of the United States in California. A few weeks before his death he made a statement in which he claimed the credit of finding the "temple library" at Nippur, a discovery to which Dr. Hilprecht had hitherto laid claim. His scientific career was characterized by modest appraisal of his own work. His researches, however, were without doubt among the most important carried on in recent years.

**HEADLEY, F. W.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**HEALTH.** See HYGIENE and articles in sanitary engineering.

**HEAP, DAVID PORTER.** An American soldier, died October 25, 1910. He was born at Stefano, Turkey, in 1843, and was educated at Georgetown College and at the United States Military Academy, graduating from the latter institution in 1864. He was appointed a first lieutenant in the corps of engineers and was assigned to the Army of the Potomac. He took part in the Richmond campaign and the siege of Petersburg. For bravery at Petersburg he was breveted captain in 1865. He was promoted to a captaincy in 1867 and served as chief engineer of the department of Dakota from 1870-72. In 1895 he was made lieutenant-colonel and in 1903 colonel. He served on a number of engineering and lighthouse boards and was chief

engineer of the department of the Pacific when he died. He retired in 1905 with the rank of brigadier-general. He was the author of several books on lighthouses and electricity.

**HEARN, LAFCADIO.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**HEARST, PHOEBE A.** See CALIFORNIA, UNIVERSITY OF.

**HEAT.** See PHYSICS.

**HEATING, ELECTRIC.** See ELECTRIC HEATING.

**HECKER, E. M.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**HEDIN, SVEN.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**HEDLEY, J.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**HEIBERG, HERMANN.** A German novelist, died February, 1910. He was born at Schleswig in 1840, and was educated in that city. His father was a publisher and the son succeeded him in the business. He sold out, however, in 1870, and went to Berlin, where he edited several papers. After a few years in the banking business he devoted himself to literature. His novels are modern and of a realistic tone, dealing mostly with family life. He wrote nearly seventy works of fiction, among which the best known are the following: *Acht Novellen* (2d ed., 1895); *Apotheker Heinrich* (2d ed., 1890); *Eine vornehme Frau* (2d ed., 1889); *Esthers Ehe* (2d ed., 1890); *Menschen untereinander* (2d ed., 1896); *Hochate Liebe schweigt!* (2d ed., 1894); *Zwischen drei Feuern* (1895); *Merkur und Amor* (1898); *Vieles um Eine* (1900); *Dreissig Geschichten* (1901); *Zwei Frauen* (1901); *Heimat* (1902); and *Die schwarze Marit* (1903).

**HEILBOEN, ERNST.** See GERMAN LITERATURE, *Fiction*.

**HEINEMANN, ALEXANDER.** See MUSIC.

**HEINSHEIMER FOUNDATION.** See CHARITY, *New York Foundation*.

**HEITLAND, W. E.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**HELIGOLAND.** It will be remembered that by the Anglo-German agreement of July 1, 1890, Great Britain ceded the island of Heligoland, which she had obtained from Denmark in 1814, to Germany. The agreement provided that those natives who so desired might declare themselves British subjects down to January 1, 1892, and that until January 1, 1910, there should be no increase in the customs dues. On that date, therefore, the period of privileges and exemptions terminated and there was nothing to prevent the complete Germanization of the island. Henceforth it is to be included in the Customs Union and is liable for its quota for military service.

**HELIUM.** See ATOMIC WEIGHTS.

**HENNING, GUSTAVUS CHARLES.** An American engineer, died December 31, 1910. He was born in Brooklyn in 1855 and was educated at the Brooklyn Polytechnic Institute and the Stevens Polytechnic Institute, graduating from the latter institution in 1876. He was engaged for several years as inspector of material in the construction of several important bridges. He spent several years in Europe installing Emery testing machines at Edinburgh and Vienna. He was inventor of apparatus for testing materials. About the year 1898 he began a translation from the German of Professor Marten's work on Testing Materials of Construc-

tion. This was not completed at the time of his death.

**HENRI, VICTOR.** See CHEMISTRY.

**HENRY, O.** See PORTER, SYDNEY WILLIAM, and LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**HENZEN, WILHELM.** A German dramatist, died in September, 1910. He was born at Bremen in 1850 and was educated at Leipzig. From 1882 to 1885 he was connected with the Stadttheatre at Bremen and in 1893 became director of the National Association of Dramatic Authors and Composers. Among his best known plays are *Die Kypseliden* (1874); *Lügen des Herzens* (1876); *Ossian* (1877); *Bettina de Monk* (1881); *Luther* (1883), and *Schillers Todesfeier* (1905). He wrote the valuable study, *Über die Träume in der altmordischen Sagalliteratur* (1885-1889).

**HEPBURN ACT, AMENDMENT.** See RAILWAYS.

**HERCULES, THE.** See BATTLESHIPS.

**HEREDITY.** See BIOLOGY; BOTANY.

**HERRICK, ROBERT.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**HERTER, CHRISTIAN ARCHIBALD.** An American pathologist, died December 5, 1910. He was born in Glenville, Conn., in 1865 and graduated from the College of Physicians and Surgeons in 1886. After postgraduate work at Johns Hopkins and at Zurich, he devoted himself to the study of the nervous system and wrote *The Diagnosis of Diseases of the Nervous System*, a text-book, published in 1892. He then took up the problems of pathological chemistry in 1897 and was appointed professor of pathological chemistry at Bellevue Medical College, and his lectures there were published in book form in 1902. In 1903 he was called to the chair of pharmacology and therapeutics in the College of Physicians and Surgeons and in 1908 was appointed physician to the hospital of the Rockefeller Institute. He was one of the group of men who developed the ideas resulting in the formation of the institute. Dr. Herter, with his wife, created two \$25,000 lectureship foundations, one at the Bellevue Hospital Medical College and the other at Johns Hopkins.

**HERZEGOVINA.** See BOSNIA AND HERZEGOVINA.

**HESSE.** See GERMANY.

**HEVESI, LUDWIG.** A German-Hungarian journalist and humorist, died Feb. 27, 1910. He was born at Heves in 1843 and studied classical philology and medicine at Vienna. In 1865 he entered journalism and in the following year became one of the editors of the *Pester Lloyd*. He then helped found the Hungarian journal *Borszem Jankó*, and from 1871 to 1874 edited the Vienna juvenile magazine, *Kleine Leute*. He became in 1875 the art and dramatic critic of the *Fremdenblatt*. He wrote mainly in German, sometimes under his own name and sometimes under the pseudonym "Onkel Tom." His works include the humorous sketches of travel and collections of stories: *Ein englischer September* (1891); *Die Althofleute* (1897); *Der aerbrockene Franz nebst andern Humoresken* (1900); *MacEck's sonderbare Reisen* (1901); biographies, *Zerline Gabillon* (1894) and *Wilhelm Junker* (1896); and books of southern travel, *Ewige Stadt, Ewiges Land* (1903), and *Sonne Homers* (1904).

**HEWLETT, MAURICE.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**HEYSE, PAUL JOHANN LUDWIG.** A German author awarded the Nobel prize for literature in 1910. He was born in Berlin in 1830 and was educated there and at the University of Bonn. He afterward travelled extensively, and carried on philological studies in libraries of Switzerland and Italy. Even earlier than this, however, he had made a dramatic essay entitled *Francesca da Rimini*. In 1851 appeared *Urica*, and in the following year, *Die Brüder*. These were republished in 1854 and made Heyse so conspicuous that King Maximilian of Bavaria invited him to make his home at Munich. In that city he resided for several years, making frequent visits to Italy. In later life he spent most of his time in that country. Heyse's many and varied productions made him a dominant figure among German men of letters. His prose fiction has been chiefly in the shape of short stories. These tales are models of their kind. The best collection is *Das Buch der Freundschaft* (1883). Perhaps the most famous single short story is *L'Arrabbiata*. He also wrote a few longer novels tinged with radical thought on social and religious questions. Among these are *Kinder der Welt* (1873), and *Im Paradies* (1875). His writings include also a large number of lyric and epic poems of high merit. The best known of the longer poems is *Thekla* (1858). In his dramas he maintained a high level, although he did not in any of them attain the highest dramatic rank. The best known of his dramas include *Maria von Magdala* (1899), *Der Heilige* (1902) and *Die Tochter der Semiramis* (1905). A collection of his novels and short stories was published in 1897-99, and tales separately in 1904. His dramatic writings are contained in thirty-four volumes (1864-1903), and a volume of *Reminiscences* from his pen appeared in 1900.

**HEYWOOD, W.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**HIBBARD, GEORGE ALBEE.** An American public official, mayor of Boston, Mass., 1908-10, died May 29, 1910. He was born in Boston in 1864 and was educated in the public schools of the city. He engaged in the wholesale produce business, and later conducted the business of an insurance broker. He was a member of the Massachusetts House of Representatives in 1894-5 and was a delegate to the Republican National Convention in 1896. In 1900 he was appointed postmaster of Boston, serving until 1908, when he resigned to become candidate for the mayoralty against John F. Fitzgerald. In this campaign he was successful. He was induced to become a candidate again in 1910 against John F. Fitzgerald and James J. Storrow, the Independent candidate. Fitzgerald was elected and the defeat of Storrow was by some attributed to the fact that Hibbard was a candidate. After this defeat Mr. Hibbard retired from public life.

**HIBBEN, J. G.** See LITERATURE, ENGLISH AND AMERICAN, *Philosophy and Religion*.

**HICHBORN, PHILIP.** An American rear-admiral, retired, died May 1, 1910. He was born in Charlestown, Mass., in 1839 and received his early education at the Boston High School. He served for five years as shipwright apprentice at the Boston Navy Yard, and by direction of the government took a course of special instruction in ship construction, calculation and design. In 1860 he went from Boston to California, and in the Mare Island Navy

Yard he became master shipwright in 1862. In 1864 he declined an offer to be assistant naval constructor, but five years later he made application for an appointment to that position and was successful. From California he was ordered to the Portsmouth Navy Yard and in 1875 was made naval constructor. After this he served at the League Island Navy Yard and in 1881 was made a member of the first naval advisory board. In 1884 he was appointed assistant chief of the Bureau of Construction in the Navy Department. In the same year he went abroad to study foreign naval construction, and the report which he made of his findings was used as a text-book among naval men. He was made chief constructor in 1893 and served in this position during the period of naval expansion in 1901. Under his supervision the construction of submarine torpedo boats was inaugurated, the amount of wood in warships was materially reduced, increase was made in conveniences aboard ship for the comfort of officers and men, and the plan of the inclined turret, sometimes called the Highborn turret, was adopted. He retired in March, 1901. Among his works on naval subjects were *European Dockyards*; *Standard Boats*, and *Sheathed and Unsheathed Ships*. He was the inventor of the Franklin life-buoy.

**HICHENS, ROBERT.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**HICKS, R. D.** See LITERATURE, ENGLISH AND AMERICAN, *Philosophy and Religion*.

**HIGGINS, A. P.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**HIGHER EDUCATION.** See UNIVERSITIES AND COLLEGES.

**HIGH PRESSURE FIRE SERVICE.** See FIRE PROTECTION AND PUMPING MACHINERY.

**HIGH PRESSURE WATER SUPPLY.** See FIRE PROTECTION.

**HIGH SCHOOLS.** See EDUCATION IN THE UNITED STATES.

**HIGHWAYS.** See PAVEMENTS.

**HILL, ADAMS SHERMAN.** An American educator, died December 25, 1910. He was born in Boston in 1833 and graduated from Harvard College in 1853. He studied law at the Harvard Law School and from 1856 to 1868 acted as law reporter, correspondent and editor in New York, Washington and Chicago. From 1872 to 1876 he was assistant professor of rhetoric at Harvard College and from 1876 to 1904 was Boylston professor of rhetoric and oratory at the same institution. In the latter year he retired with the rank of professor emeritus. He received the degree of Doctor of Laws from Harvard in 1903. He was the author of *Principles of Rhetoric* (1878; revised edition, 1895); *Our English* (1889); *Foundations of Rhetoric* (1892); *Beginning of Rhetoric and Composition* (1903). He also contributed to leading reviews and magazines.

**HILL, DAVID BENNETT.** An American public official and lawyer, former Senator of the United States and governor of New York, died October 20, 1910. He was born at Havana, N. Y., in 1843 and was educated in the district schools and in Havana Academy. His father was a carpenter in poor circumstances. He studied law in the office of Erastus B. Hart in Elmira, N. Y., and in 1864 was admitted to the bar. While he was still a law student he became actively interested in politics. When but seventeen years of age he made a speech on the

occasion of the raising of a flag-pole in honor of Stephen A. Douglas. His first office was that of city attorney of Elmira. He was elected to the Assembly in 1871 and re-elected in the following year. During his service in the Assembly he was on the judiciary committee with Samuel J. Tilden and took a prominent part in the reform legislation which the latter went to Albany to pass. From his first participation in politics, Senator Hill was lieutenant to Tilden. With Daniel S. Lamont, Edward Cooper, and Abram S. Hewitt, he helped Tilden to fight Tammany Hall. After having served two terms as alderman in Elmira he was elected mayor of that city in 1882 on a reform ticket. At this time Grover Cleveland was beginning to be a prominent figure in the Democratic party, and when the latter was nominated in 1882 for governor, Hill was placed on the ticket for lieutenant-governor. He continued to be lieutenant-governor of the State until 1885, when Cleveland was inaugurated as President. He then became governor and held this office until January, 1892, when he was succeeded by Roswell P. Flower. His tenure of office as governor was exceeded in length only three times in the history of the State, by George Clinton, De Witt Clinton, and Daniel D. Tompkins. Senator Hill was at first a strong supporter of President Cleveland and he exerted all his political ability to bring about the nomination and election of Mr. Cleveland as President. During his first term as governor the legislature was Republican and with it he carried on an uncompromising battle. He vetoed many bills, largely for party reasons, and the legislature retaliated by refusing to confirm his nominations. At the end of the regular session there was a deadlock and he was obliged to call an extraordinary session, in which, however, he was able to accomplish little. Although he was re-nominated for the governorship, there was a lack of enthusiasm for him in the party because many thought that he could not be trusted. His Republican opponent was Ira Davenport. The campaign on the part of the Republicans was carried on also with a lack of enthusiasm. At a meeting held in Brooklyn, which began apathetically, Mr. Hill, who had begun his speech quietly, suddenly changed his manner and cried out in ringing words, "I am a Democrat." The effect was electrical. The sentence was taken as the keynote of the campaign and Davenport was defeated by 11,134 votes. For the rest of his life Mr. Hill was cartooned in a small silk hat, decorated by a long feather, which bore the words "I am a Democrat."

During his second administration, Governor Hill's plan to do away with hanging and substitute death by electricity as punishment for capital crimes was brought to a successful conclusion in the face of violent opposition. Senator Hill was often accused of treachery to President Cleveland in the latter's second administration. He did not approve of the President's tariff views, and in the campaign he stated plainly that if there were any who meditated cutting the national ticket they should cut the State ticket as well. He himself worked hard in the campaign and the fact that he carried the State and Cleveland lost it was always considered by him not so much a personal tribute as evidence that the Democrats were afraid of President Cleveland's tariff doc-

trines. Following the defeat of President Cleveland in 1888, the latter's friends in New York gave themselves to the effort to have him renominated four years later. Hill was equally determined that he himself should be the Democratic nominee. He made a tour in the South for the purpose of winning delegates and in 1891 had himself elected United States Senator to succeed Senator Hiscock. In the State Convention he was declared the State's choice for President. This convention had been called together by Senator Hill and it was known as a "snap convention." It greatly angered Mr. Cleveland and his friends. Hill had the support of the regular Democratic organization, while William C. Whitney was in charge of the Cleveland forces. At the convention held in Chicago Cleveland won the nomination on the first ballot by a vote of 617½ delegates, while Hill had but 114. Following President Cleveland's election considerable trouble arose between him and Senator Hill over the distribution of patronage in New York State. The President acted in his appointments without special regard for the Democratic organization. There was no open hostility until the President nominated William B. Hornblower as Associate Justice of the Supreme Court of the United States. Senators Hill and Murphy at once announced that they would make an issue of the right of the President to ignore them. They were supported by Senator Gorman, then the chief power in the Senate. Senator Hill made an eloquent speech against nominating Hornblower and the Senate voted against the nomination. The President shortly afterwards nominated Wheeler H. Peckham and Hill and Murphy were again prepared to oppose him. After a conference with the President, however, their opposition to Peckham was withdrawn. Thereafter Senator Hill was a defender of the administration.

In 1894 he was nominated for governor against his will and was defeated by Levi P. Morton, the Republican candidate, by a majority of 156,108. Opposition to the election of Isaac H. Maynard, a candidate for the Supreme Court on the Democratic ticket, was the chief cause of the tremendous overthrow. Maynard had been proved corrupt. In the Democratic National Convention in St. Louis in 1896, Senator Hill was defeated for the temporary chairmanship by a vote of 556 to 349. At this convention William J. Bryan was nominated for the presidency on the free silver platform. Senator Hill would not speak for him in the campaign and was always in opposition to Mr. Bryan's doctrines. As a result of the election of President McKinley and the carrying of New York State by an enormous plurality, Senator Hill was succeeded in the Senate by Senator Platt in 1897. In 1898 Senator Hill came into conflict with Richard Croker, who was then the leader of Democratic politics in New York City. Croker wished the nomination of Augustus Van Wyck for governor, while Senator Hill favored the nomination of his law partner, John B. Stanchfield. The Republican candidate was Theodore Roosevelt. Van Wyck was nominated, but was defeated by only 17,794 votes. Senator Hill always maintained that Stanchfield could have beaten Roosevelt. Croker and his associates continued their measures against Senator Hill. An attempt was made at the National Convention of 1900 to humiliate him by

removing him from the committee on resolutions and substituting Van Wyck. They endeavored, in addition, to press the nomination for vice-president upon him, but he declined to be considered. He was active in the campaign of 1900 and supported the nomination of Bird S. Coler for governor. His wishes were disregarded and John B. Stanchfield, who had in the meantime joined with the Coker forces, won the nomination. He was defeated by Benjamin B. Odell, Jr. Two years later Senator Hill succeeded in bringing about the nomination of Coler, but Odell again won by 8803 votes. It was generally believed that the defeat of Coler was brought about by the insertion of a plank in the platform calling for state ownership of coal mines. Senator Hill was directly responsible for the inclusion of this plank in the platform.

In 1904 Senator Hill was largely instrumental in carrying New York State for Alton B. Parker. He controlled the Democratic State Convention, which was instructed to vote as a unit for Parker, who was nominated in the National Convention. Following the defeat of Mr. Parker for the presidency by Theodore Roosevelt, Senator Hill practically retired from politics. In spite of his political activities he had been one of the most prominent lawyers in the State, and from this time until his death he practiced law and was associated in some of the most important cases before the courts. He was unquestionably one of the ablest lawyers of his day. His personality was not inspiring, as he had a certain cool aloofness which prevented familiarity. As a political fighter New York State has probably never seen his equal. He did excellent work in the Senate and was identified with some of the most important measures passed by that body during his term of service. It was frequently said of him that while many derided him as a "peanut politician" because of his minute attention to details and his liking for quarrels, he had the mind of a statesman if not the conduct of one. He was a student of literature and of the politics of all countries.

**HILL, JAMES J.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**HIRSCH, H.** See FRENCH LITERATURE.

**HIRST, W. A.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**HISTORICAL ASSOCIATION, AMERICAN.** A society for the promotion of historical studies, organized at Saratoga, N. Y., in 1884. Its membership in 1910 was 3000. The Association has from the first pursued the policy of admitting to membership not only those professionally or otherwise actively engaged in historical work, but also those whose interest in history or in the advancement of historical science is such that they desire to ally themselves with the Association and the furtherance of its objects. Its principal office is fixed at Washington and it is required to make an annual report to the Secretary of the Smithsonian Institution, which holds annual meetings in different cities of the United States. The meeting for 1910, which was the 26th, was held at Indianapolis, December 27-30. Among the topics discussed at the various sessions were Ancient History, Modern European History, American Diplomatic History, with special reference to Latin-American relations, Mediæval History and many important subjects dealing with

American history. Among the important papers on the latter subject were those of Orin G. Libby of the University of North Dakota on *New Light on the Explorations of the Verendrye*; The American Intervention in West Florida by Isaac J. Cox of the University of Cincinnati; A Century of Steamboat Navigation on the Ohio, by Archer B. Hulbert of Marietta College; and *Early Forts on the Upper Mississippi*, by Dan E. Clark of the State Historical Society of Iowa. Upon Ancient History papers were contributed by Robert W. Rogers of Drew Theological Seminary, George W. Botsford of Columbia University, R. F. Scholz of the University of California and Walter L. Westermann of the University of Wisconsin. On December 29 a general session was held commemorating the fiftieth anniversary of secession. Interesting papers dealing with this period were those of Worthington C. Ford on *Cotton and Border Politics, 1859-1860*, of Carl R. Fish on the *Decision of the Ohio Valley*, of Edward S. Corwin on the *Dredd Scott Decision*, and of Andrew C. McLaughlin on the *Doctrine of Secession and Coercion*. A conference of archivists was also held, as well as a conference of teachers of history in teachers' colleges and normal schools and a conference of State and local historical societies. The publications of the society include the *Annual Report*, the *American Historical Review* and the *Handbook*. Under the auspices of the society is being published a series of *Original Narratives of Early American History*, and it is assisting in the publication of an annual bibliography, *Writings on American History*, and of the series of *Acts of the Privy Council of England, Colonial*. The officers of the Association in 1910 were: President, Frederick J. Turner; Vice-Presidents, William M. Sloane and Theodore Roosevelt; Secretary, Walter G. Leland; Treasurer, Clarence W. Bowen; and Secretary of the Council, Charles H. Haskins.

**HISTORY.** See LITERATURE, ENGLISH AND AMERICAN; FRENCH LITERATURE; GERMAN LITERATURE.

**HITCHCOCK, F. H.** See UNITED STATES, *Post-office*.

**HOBHOUSE, W.** See LITERATURE, ENGLISH AND AMERICAN, *Philosophy and Religion*.

**HOCKEY.** The annual championship series of the American Amateur Hockey League was won for the second successive year by the New York Athletic Club seven, which only lost one game of the eight played. The final standing of the clubs in the league follows: New York A. C. won 7, lost 1; Wanderers Hockey Club won 6, lost 2; Crescent A. C. won 3, lost 5; St. Nicholas Hockey Club won 3, lost 5, and the Hockey Club of New York won 1, lost 7. The Wanderers of Montreal captured the championship of the Canadian Professional Hockey League winning 11 games and losing 1. The Ottawas finished second with 9 games won and 3 lost. In the contest for the Stanley Cup, the Wanderers were also victorious. The championship of the Intercollegiate League went to the Princeton team, which won every game played. Harvard was second with 4 victories and 1 defeat, and Cornell third with 2 victories and 2 defeats. Columbia failed to win a game.

**HOCKING VALLEY RAILROAD.** See RAILWAYS.

**HODENPYL, EUGENE.** An American pathologist, died May 5, 1910. He was born in

Plainfield, N. J., in 1863, and graduated from the College of Physicians and Surgeons in 1885. He acted as house physician and pathologist at the Roosevelt and other hospitals in New York City. In the early part of 1910, he came into prominence through the publication of a preliminary paper concerning some discoveries that he had made regarding the course and treatment of cancer. Physicians had long noticed in cancer cases that occasionally a case was presented which apparently had cured itself. Dr. Hodenpyl encountered such a case and had noted the presence of a dropsical fluid in the abdominal cavity which it was necessary to remove frequently. It occurred to him that this fluid might contain nature's cure for cancer and on that line he proceeded to experiment with gratifying results. He employed the use of this fluid in forty-seven cases, but his observation up to the time of his death had not proceeded far enough to determine whether or not the treatment was efficacious. In all cases, however, the cancerous tumors had grown smaller and in some they had completely disappeared.

**HODGSON, F. C.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**HOFMANN, JOSEF.** See MUSIC.

**HOG CHOLERA.** See VETERINARY SCIENCE.

**HOGG, JAMES.** An English publisher, died January, 1910. He was born in 1829, the son of James Hogg, the Edinburgh printer and publisher. He early engaged in business with his father. As editor of *Hogg's Instructor*, in 1850, he met De Quincey, who afterwards became a regular contributor to that magazine. In 1858, with his brother, John, he founded in London a branch publishing house which afterwards took over the entire business of James Hogg and Sons. This firm was dissolved in 1867. Mr. Hogg was the author of *De Quincey and His Friends*.

**HOGS.** See STOCK-RAISING.

**HOLBACH, M. M.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**HOLDITCH, Sir T. H.** See LITERATURE.

**HOLLAND.** See NETHERLANDS.

**HOLM, FRITS VON.** See EXPLORATION.

**HOLMAN HUNT, WILLIAM.** See HUNT, WILLIAM HOLMAN.

**HOLMES, D. T.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**HOLMES, LUDWIG.** A Swedish-American clergyman and poet, died in November, 1910. He was born in Sweden in 1858 and received his early education in that country. He removed to Illinois, where he spent the greater part of his life. He held important office in the Lutheran church in that State. In 1897 he was honored by King Oscar of Sweden with the jubilee token in silver and in 1901 with the blue ribbon which is the highest Swedish award for literary merit. His best-known work is a volume called *Dikter af Ludvig*.

**HOMER, WINSLOW.** An American artist, died September 30, 1910. He was born in Boston in 1834. He showed great interest in painting from childhood and began the study of art in Boston. At the age of nineteen he entered the employ of a lithographer, where he remained for two years. In 1859 he settled in New York and began to study at the school of the National Academy and under F. Rondel. He began to illustrate for various publishers and was sent to the front in the Civil War for

*Harper's Weekly*. At this time he first painted in oil. In 1864 he was elected an associate of the National Academy and in the following year was made an academician. His pictures attracted attention and in 1867 he went to Europe for a brief stay. He frequently exhibited in London and Paris and gained special success abroad in his studies of negro figures. One of his first pictures to attract attention was "Prisoners to the Front," which he painted in Washington during the war. This picture made a profound impression, owing largely to the state of mind of the country at that time. After his war pictures had become known, he turned his attention to studies of negro life and at a later stage of his career painted fisherfolk and the hunters in the Adirondacks. He also worked to some extent in the field of landscape. His studies of fishermen were made first at Gloucester, where his paintings of the sea showed his genius in a new light. "The Life Line," "Undertow," and "Perils of the Sea" are among his well-known sea studies. "The Hunter," exhibited by him at the World's Fair in Chicago, received the gold medal, and he won a gold medal at Paris in 1900. He painted also in water colors and in 1866 was one of the founders of the Water Color Society. The last two years of his life he painted altogether in water colors. Mr. Homer was perhaps the best known of contemporary American painters at the time of his death.

**HOME RULE.** See GREAT BRITAIN, *History*; also MUNICIPAL GOVERNMENT.

**HONDURAS.** A Central American republic. The capital is Tegucigalpa.

**AREA AND POPULATION.** The estimated area is 44,274 square miles; another estimate places the area at 46,250 square miles. The population, according to official figures, was 500,136 at the end of 1906. A recent estimate, probably exaggerated, is 745,000. The population is principally Indian. The larger towns, with estimated population, are: Tegucigalpa, 35,000; Juticalpa, 17,800; Nacaome, 12,040; La Esperanza, 11,500. For primary instruction, which is free, secular, and nominally compulsory, there are about 850 schools with about 30,000 pupils. There are several secondary and normal schools and, at the capital, an institution for higher and professional education.

**INDUSTRIES.** The people are engaged principally in agriculture and cattle-raising. The most important crops are bananas and corn. In 1909 the Atlantic coast district produced about 9,000,000 bunches of bananas, and the total yield of corn was reported at 478,395 bushels. Other products are coffee (5,500,000 pounds in 1909), sugar, tobacco, rubber, and fruits. There is some exploitation of the forests, which are rich in cabinet woods. Mineral deposits, which include gold, silver, copper, and many other metals, are remarkable in richness and quantity, but they are not extensively worked.

**COMMERCE.** For the fiscal year ending July 31, 1908, imports and exports were valued at 7,075,085 pesos (silver) and 4,585,157 pesos respectively; for 1909, 6,841,115 and 5,275,094. With the average gold premium at 165 during the latter year, the imports and exports are represented by \$2,581,553 and \$1,990,601 respectively. The leading imports are cotton textiles and breadstuffs and other provisions. Classified exports in 1909 were: Vegetable products, \$1,203,905; mineral products, \$662,957;

animal products, \$116,236; manufactures, \$6158; miscellaneous, \$1345. The more important exports included: Bananas, 4,630,241 bunches, valued at 2,410,193 pesos (silver); cyanide products, 1,423,193 pesos; cocoanuts, 8,035,262 in number, 300,104 pesos; silver, 267,023 pesos; coffee, 153,635 pesos; cattle hides, 139,623 pesos; cattle, 126,263 pesos. Imports from and exports to the principal countries in the fiscal year 1909 were respectively: United States, \$1,769,877 and \$1,834,565; Great Britain, \$245,258 and \$12,191; Germany, \$233,515 and \$71,793; France, \$114,891 and \$1428.

**COMMUNICATIONS.** There are about 100 miles of railway, including a line of 57 miles from Puerto Cortés to Pimienta and one of 32 miles from Ceiba into the Zacate banana lands. Several new lines and extensions are projected. Steamers ply the Ulua River from its mouth to Progreso, 125 miles. Reported miles of telegraph, 3600, with 217 offices. Post-offices, 256.

**FINANCE.** For the year ending July 31, 1909, net revenue amounted to 3,408,574 pesos (silver), of which customs duties yielded 2,379,926 pesos; expenditure, 8,548,388 pesos, of which 3,822,234 were ordinary (including 1,495,829 for war), 4,317,106 on special accounts, and 409,048 on account of the internal debt. This debt stood on that date at 4,019,253 pesos; the external debt (of which a considerable portion is in dispute), £22,470,510, of which £17,071,940 were arrears of interest. The value of the peso is about 37 cents, fluctuating with the price of silver.

**ARMY.** There is an active army of about 2000 officers and men. The effective strength of the reserves is about 50,000, latest reports giving 49,431 officers and men, of whom 955 are officers and 2900 non-commissioned officers. By law every citizen is liable for service in the active army from his 21st to 35th year and in the reserve from his 35th to 40th.

**GOVERNMENT.** The executive authority is vested in a president, elected by direct vote for four years. The legislative power rests with a unicameral congress of 42 members. The executive in 1910 was Gen. Miguel R. Dávila, who assumed provisional charge of the presidency April 18, 1907, and became president early in the following year.

**HISTORY.** In August the arrest of revolutionists under ex-President Bonilla and General Lee Christmas, who had been active on the Guatemalan border, was reported by President Cabrera. There were conflicting reports about the revolution in Honduras. President Cabrera of Guatemala was supposed by some to have encouraged the revolution and was reported that President Dávila of Honduras himself had expressed a suspicion to this effect. It was reported afterward, however, that President Cabrera denied the charge and said that Bonilla was still in confinement at the Guatemalan capital. In November, Bonilla and Christmas, having been expelled from Guatemala, were in New Orleans. There were signs of anti-British feeling in the town of Ceiba, where three British citizens of Jamaica had been killed and others maltreated. A British cruiser appeared on the coast and demanded an indemnity. Serious complaints were brought against Governor Valladares for his treatment of the foreign residents of Amapala. He was said to be especially bitter against the Americans and to have ordered the imprisonment of American and Eng-

lish residents and the confiscation of their property, also to have refused to receive the American Minister with customary honors. Finally in October the foreign residents withdrew from the city and an American gunboat was sent to protect American interests there. The diplomatic representatives urged that the governor be dismissed and the President later sent troops to remove him. Upon the arrival of the American gunboat, Governor Valladares showed a more submissive attitude and subsequently surrendered to the President and was then obliged to call upon the United States government for its help against attacks of the people. Later, however, Governor Valladares returned to Amapala and resumed his aggressive attitude toward the Americans. He also ignored the authority of his successor. The guns of the gunboat were trained on his residence and he afterwards gave assurance of his better behavior.

**HONDURAS, BRITISH.** See **BRITISH HONDURAS.**

**HONEY BEE.** See **ENTOMOLOGY.**

**HONGKONG.** An island off the southeast coast of China, constituting, with 4 square miles of the peninsula of Kowloon (which is part of Hongkong proper) and a strip of territory on the mainland leased from China, a British crown colony. Area of the island, about 30 square miles; of the leased territory, 376 square miles. Population of Hongkong (1907 estimate), 421,499 (Chinese, 401,461); of the leased territory, 100,000, exclusively Chinese. Capital, Victoria. Births 4.17, deaths 27.55 per 1000 of the population in 1908 (calculated only on the population of Hongkong and Kowloon), Chinese emigrants (1908), 71,081; Chinese immigrants, 157,809. There are government and other schools; expenditure (1908), 205,875 dollars. The important industries are cotton-spinning, sugar-refining, ship-building and repairing, rope-making, cement manufacture, flour-milling, brewing (latterly), the fabrication of knit goods, and deep-sea fishing. Hongkong is a free port (save for the ordinance passed September 17, 1909, imposing a tax on liquors) and the centre of trade for many classes of goods, mostly transit; it is fortified, and has a magnificent harbor. There are no official returns of trade, which is chiefly with Great Britain (about one-half), India, Australia, the United States, and Germany. The British Board of Trade returns give the imports into Great Britain from Hongkong for 1909 at £455,674, against £510,495 in 1908; and exports of British produce to Hongkong at £3,713,852, against £3,088,340. Registered shipping (December, 1908), 45,521 tons. Total tonnage entered (1908), 11,164,386; cleared, 11,142,731. The money of account is the Mexican dollar. Revenue (1909), 6,822,966 dollars, against 6,104,207 in 1908 (derived mainly from land taxes, licenses, quarry rent, and an opium monopoly, which together more than cover the expenses of administration). Expenditure, 6,542,839 dollars, against 7,929,477 in 1908 (a large part of which is devoted to the maintenance of a strong police force and to sanitary measures against plague). Public debt, December 31, 1908, £1,485,733. The British section of the Hongkong-Canton railway was begun in 1907, and was opened to traffic October 1, 1910. The Chinese section is expected to be finished in May or June, 1911. Total length

is to be 111 miles (British, 22; Chinese, 89). Both are controlled by British interests. Hong-kong is the headquarters of the China Squadron (about 60 vessels); the new admiralty dock was completed in 1910. Governor, 1910, Sir F. D. Lugard. The sum required for the cost of the new university buildings has been provided; the necessary endowment funds are guaranteed; and the conditional subscriptions, amounting to £111,926, are being collected. The corner-stone of the new university was laid in March. Difficulties arose with the Chinese government over the suppression of the opium traffic. The British consul-general at Canton protested against the levying of illegal charges and interference with British trade, but the Viceroy denied the justice of this claim, saying that it was a right of the internal administration to levy imposts, and accused the British of non-compliance with the terms of the opium agreement. Later, however, the Wai-wu-pu declared this opium tax illegal and agreed to give proper instructions to the Viceroy of Canton.

**HONVED.** See AUSTRIA-HUNGARY, Army.  
**HOOKWORM DISEASE.** (UNCINARIASIS, ANKYLOSTOMIASIS, MINERS' ANEMIA.) The first conference for the purpose of considering the hookworm situation in the South was held at Atlanta, January 18 and 19, 1910. Five hundred delegates were present. Dr. C. W. Stiles, of the United States Marine Hospital Service, gave a brief historical account of the disease and reviewed conditions in the United States. The hookworm was first described by a German clergyman named Goetze, in 1782, who called it *haaken wurm*. In 1837, Dubini, of Milan, found the parasites in autopsies and gave them the name *Ankylostoma duodenale*, which to-day is known as the old-world hookworm in distinction from the American variety, named by Stiles *Necator americanus*. A few years later it was discovered that hookworm infection was common in Egypt, and a similar parasite was discovered in Brazil, where its clinical manifestations were carefully studied. In 1879 an outbreak of uncinariasis occurred among the miners of the St. Gothard tunnel (miners' anemia). In the United States the first to recognize the worm and its importance was Dr. H. F. Harris, while Stiles, by his systematic study and writings, made the disease one of national interest and concern. In 1909 Mr. John D. Rockefeller gave \$1,000,000 for a campaign against the disease and a commission was formed for that purpose. The distribution of the hookworm in the South is of interest. Infection is greatest in the sandy area, next greatest in the Appalachian region, and lightest in the clay lands. As a result of personal examination of 130 mills, Stiles believes that one out of every eight cotton-mill employes has well-advanced hookworm anemia. In the sand-land mills, the proportion is as high as 60 per cent., while in the clay belt infection is 5 per cent., or less.

Stiles believes the hookworm to have been imported from Africa by the negro. The parasite is a member of the roundworm family (*Strongyloidea*), is from 7 to 11 millimetres long, and inhabits the upper part of the small intestine, to the mucous lining of which it attaches itself by means of suckers. The worm is also armed with a hollow toothlike spine, by means of which it pierces the blood-vessels

and sucks the blood, at the same time injecting a toxic substance into the circulation. The female worm lays an abundance of eggs, which are cast into the world with the feces, and, under proper conditions of soil and moisture, these develop into larvæ, which in turn enter the human body with the food or through the skin. The latter is the main avenue of entrance, the skin of the feet particularly serving as a portal. The irritation to which the larvæ give rise in the skin is known as ground itch or dew itch. The larvæ are exceedingly minute, and having pierced the skin gain access to the lymph and blood channels, reaching, by way of the heart and lungs, the mouth cavity, from which they get into the intestine. As many as 4000 worms may be present in one person at one time, and 2,000,000 eggs may be discharged in a single stool. As a result of the constant abstraction of blood, the patient becomes anemic, the hemoglobin dropping to 30 per cent. in severe cases, or even lower in fatal cases. There is a moderate decrease in the number of red blood corpuscles, and an increase in the eosin staining cells (eosinophiles), which is a distinctive characteristic of the disease. The symptoms vary with the severity of the infection, from mild pallor, dyspepsia and lack of ambition, to the manifestations of a severe anemia, with prostration, dizziness, vomiting, dilatation of the heart and dropsy. Children suffer the most. Development, both physical and mental, is very much retarded. The face has an old, tired look, puberty is delayed. Resistance to other diseases is lowered, and the mortality from intercurrent diseases is excessive. The prevention of hookworm disease lies in the adoption of sanitary methods of disposal of excreta (the reverse of which is the rule in country districts of the South); personal cleanliness, and the wearing of shoes. The most satisfactory feature of hookworm disease is the promptness with which it can be cured. Thymol and beta naphthol are the drugs most used in this country. Large single doses are given on an empty stomach. In Germany, where uncinariasis prevails extensively among miners, male fern is the favorite specific. Wijn, a Japanese physician, reports most satisfactory results from a mixture of eucalyptus oil, chloroform, and castor oil. An interesting account of the disease in Porto Rico, and of the labors of the Porto Rico Anæmia Commission, will be found in an article, "Summary of a Ten Years' Campaign against Hookworm Disease," by Ashford and Igaravidez, in the *Journal of the American Medical Association*, May 28, 1910.

**HOOSAC TUNNEL.** See RAILWAYS.

**HOPKINS, EDWARD MÜLLER.** An American Protestant Episcopal clergyman and author, died January 14, 1910. He was born at Hannibal, Mo., in 1870, and graduated from Columbia University in 1893 and for a short time following taught Latin in the Cheltenham Military Academy. He then studied Latin at Harvard University, taking a degree in philosophy. He was instructor in Latin in the University of California from 1898 to 1901 and was professor of Latin in Trinity College from 1901 to 1905. He studied for the ministry and was ordained priest in 1906. For a short time prior to his ordination he served as city missionary of Grace Church, New York City. In 1906 he became rector of the Church of the Holy Nativity in

Bronx Borough, New York City. He contributed poems to several magazines and was the author of several novels, including *The Fighting Bishop* (1902); *The Torch* (1903); *The Mayor of Warwick* (1906); and *Priest and Pagan* (1907).

**HOPS.** The world's hop crop in 1910 was below the average and was inadequate to cover normal consumption. In many hop-growing regions of Europe unfavorable weather reduced both quantity and quality of the crop. The United States produced a good crop of fair quality. The world's area in hops for the year was estimated at 235,790 acres, the yield at 1,631,000 cwt., and the consumption at about 1,800,000 cwt. The production of different countries was as follows: The United States produced 440,008 cwt. on 44,480 acres; Germany, 387,200 cwt. on 67,869 acres; Austria, 312,400 cwt. on 57,065 acres; England, 308,000 cwt. on 32,124 acres; France, 59,400 cwt. on 6920 acres; Belgium and Holland, 52,800 cwt. on 4695 acres; and Australia, 11,000 cwt. on 1850 acres. Russia produced about 60,000 cwt. and a large proportion of the crop was high in quality. In many European localities the crop got too ripe before picking on account of a scarcity of labor. The Bavarian and Bohemian crops were quite uneven. The Hallertau region harvested a satisfactory crop, while the product of the Spalt district was low in quality. The famous Saaz hop district produced a crop lacking in color, while other Austrian regions were favored with a larger yield of better quality. A large part of the European crop was not considered sufficiently good for brewing purposes and the real prime green-colored product was scarce. The English hop crop was short and the deficiency was largely covered by importations from the United States. The hop production of the Pacific coast was estimated as follows: Oregon, 100,000 bales (of from 190 to 200 lbs.), California, 70,000 bales, and Washington 21,000 bales. In 1909 the yields for these States were 82,500, 70,000, and 17,500 bales respectively. A machine for picking hops recently patented in the United States was reported as successfully in use on some of the extensive hop plantations of the Pacific coast. The hop production of New York was greater by about 10,000 bales in 1910 than in 1909, when 42,000 bales were secured.

**HORSES.** See STOCK-RAISING.

**HORTICULTURE. THE WORLD'S FRUIT CROP.** There was a rather general reduction in the world's production of horticultural crops in 1910, due chiefly to inclement weather conditions during the blooming period in some countries and throughout the season in others. Europe was the greatest sufferer. Great Britain reported a bad crop year for apples, pears, plums, and cherries. In France the grape and prune crops were practically a failure, and reduced yields of almonds, walnuts, and olives were also recorded. More or less serious shortages in the olive crop were reported from all the producing countries except Turkey. As a result the reserve stock of olive oils was being held for increasing prices. The shortage in the world's raisin, currant, and fig crops was sufficient to clear the market of old stock and to somewhat improve the prices to growers. The Canadian apple crop for 1910 was very short, and in the United States the crop was about 2 million barrels short of the average annual

output, which owing to the continued low yields of the past six years should now be placed at approximately 25 million barrels. The most serious shortage to be recorded is that of European wine grapes, which were less than half a crop. The average vintage in a normal year approximates 3000 million gallons of wine, of which about one-third is produced in France. France consumes about 100 bottles of wine per capita and the failure of the grape crop was regarded as little short of a national calamity, since it affected an army of people connected with the industry in addition to curtailing the cheap wine supply of the populace. In Germany, Switzerland, and portions of Italy the greatly reduced vintage was also seriously felt. Yields in the more southern European wine centres were nearly up to the average and of good quality. California again produced a banner crop of 45 million gallons and was beginning to supply a small portion of the European demand.

**EXPORTS AND IMPORTS.** The United States shipped 89,014,080 pounds of prunes to Europe in the fiscal year 1909-10, as compared with 22,602,288 pounds in 1908-9, and with a ten-year average annual export of 43,694,116 pounds. California made large shipments of prunes for local consumption in France, which is in normal years an export country for that fruit. Owing to the slowness of domestic buyers, a prune shortage in the large markets of the United States is expected. In 1910 California shipped 12,919 cars of fresh deciduous fruits, other than apples and mixed lots, and packed about 148,275 tons of cured fruits. The only serious decrease was the prune pack, which was about one-half of that of the previous year. California shipped 33,099 car-loads, or 9,929,700 boxes, of citrus fruits in 1909-10, and Florida shipped about 21,600 car-loads, or 6,500,000 boxes. The canned packs in the United States of tomatoes, corn, and peas in 1910 were 8,031,000, 10,063,000, and 4,137,000 cases respectively, as compared with 10,984,000, 5,787,000, and 5,028,000 cases respectively in 1909. The domestic production of raisins, prunes, and oranges in the United States is fast supplanting the imports of these fruits. On the other hand the prosperity of the country has been such that imports of foreign fruits and nuts as a whole have increased from 19 million dollars in 1900 to about 38 million dollars in 1910. Bananas constitute about one-third of the foreign fruits consumed. In 1900 the total export of all fruits and nuts from the United States approximated 12 million dollars and in 1910 about 19 million dollars. Hawaiian canned pineapple shipments to the United States increased from a value of \$1,229,647 in 1909 to \$1,548,950 in 1910. Porto Rico made a total fruit export, consisting principally of oranges and pineapples to a value of \$1,416,947, as compared with about \$125,000 five years ago.

**RECENT DEVELOPMENT.** The development of fruit industries in Australia and Africa progressed favorably. Tasmania produced the largest apple crop yet harvested, 808,842 cases of green fruit, 62,312 cases of preserved fruit, and 13,770 cases of pulp for jam being exported. By evaporating the poorer grade of apples about \$500,000 were saved to the growers from otherwise worthless fruit. The output had a ready sale in the Australian markets. Considerable

progress is being made in the Cape of Good Hope in the development of the export trade, both in fresh and dried fruits. The principal fresh fruits exported thus far are grapes, pears, plums, peaches, nectarines, and apricots. In the dried fruit industry prunes head the list, although large quantities of apricots, peaches, pears, nectarines, figs, and plums are dried as well. Fig-growers were being encouraged in developing the Smyrna fig industry by the introduction of several varieties of the caprifig for the purpose of breeding the *Blastophaga* insect necessary for caprifying the Smyrna fig. Fresh pineapples packed in peat dust were successfully shipped from Kamerun, West Africa, to Hamburg, Germany. It is believed that the packing of pineapples in peat dust may enable shippers to forward fruit on vessels not provided with cold-storage facilities.

**IMPROVED METHODS.** During the year establishments for pre-cooling fruits for shipment, costing millions of dollars, were brought into use in the United States. Australia was conducting cold-storage experiments with a view to carrying a portion of the home crop over to compete with American fruits later in the season. The first experimental station of cold storage in France was established July 23 at Château Renard (Bouches du-Rhône), under the auspices of the French Association for Cold Storage. The station is located in a marketing centre and the experiments are to include fruits, vegetables, and various food products. In the United States interest in frost-prevention devices was revived, and the use of various forms of orchard heaters promises to become a stated affair in all fruit centres where late spring frosts occur. D. C. Lefferts of the Redlands Orange Growers' Association, California, was successful in separating frost-bitten oranges from sound fruit by means of a denatured alcohol bath, the frost-bitten fruit being sufficiently light to float on the top of the liquid. A machine has been devised for carrying on the separating process. Oranges subjected to this bath and examined later in the eastern markets were particularly free from the spores of fungi which cause decay.

The fruit marketing, transportation, and storage work of the U. S. Department of Agriculture (see *INTERNATIONAL YEAR BOOK*, 1909) was continued with table grapes, lemons, and apples in California, oranges in Florida, and peaches in Georgia. The results as a whole continued to emphasize the fact that loss in general is proportionate to the amount of injury that the fruit receives prior to or during packing. For example, lemons packed in California by 8 packing houses where careful methods prevailed developed less than one-tenth as much blue mould as fruit packed by 8 houses under careless conditions. A. F. Sievers of the same Department found that heat and humidity are not the prime factors producing change of color in lemons during the "sweating" process, but that the coloring is brought about by some of the gaseous products of the incomplete combustion of oil. This conclusion suggests the simplification of modern sweat-room construction and the further adaptation of the old oil-stove device. The Jamaica Department of Agriculture found that where oranges and bananas were stored together in a tight chamber, as in a ship's hold, the emanations from the oranges brought about a premature ripening of the bananas. It

was therefore recommended that these fruits be stored in separate compartments when being shipped for long distances by sea. In this connection, the Arizona Experiment Station found that date ripening may be hastened by spraying the immature fruit with a solution of acetic acid. The Ontario Department of Agriculture made successful trial shipments of fresh peaches, pre-cooled and shipped under refrigeration to British markets. The fruit netted the growers about 80 cents per six-pound package, f. o. b. shipping point. The successful ripening of a number of the best types of imported varieties of dates at the U. S. Department of Agriculture gardens in Arizona and California led to a greatly increased interest in the possibilities of commercial date culture.

The variation of the same kind of fruit grown in different climates was indicated from studies made by the Massachusetts State Station of Ben Davis apples collected from various sections of the United States and Canada. Generally speaking this variety gradually becomes more elongated in form the farther north it is grown. A correlation of the variations in fruit characteristics with the meteorological data indicates that the poor quality of the northern-grown Ben Davis is due to an insufficient amount of heat to fully develop the fruit. P. Viala and P. Pechoutre, eminent French viticulturists, have summed up the evidence from many investigations relative to the behavior of American species of grapes as stocks for the choice wine grapes in France. The evidence as a whole showed the superiority of *Vitis berlandieri* and its hybrids with *Vitis riparia* in improving the wines of all grapes grafted thereon. This desirable property is leading to the general use of the above named stocks in nearly all soils. The claim made by Dr. T. V. Munson, the American grape authority, that all known fruiting varieties of *Rotundifolia* grapes have imperfect flowers and require staminate vines of the same species growing near was fully confirmed by the results of extensive experiments recently reported by the North Carolina Station.

As a result of experiments conducted during the past three years, J. Coffigniez, a French investigator, reported that he had successfully combated chlorosis in pear trees by the introduction of sulphate of iron into the wood. The remedy was only temporary, however, in the presence of impoverished soil or when the tree was too old or seriously diseased or weakened by insects.

**DOMESTICATION OF THE BLUEBERRY.** As a result of several years' investigations, F. V. Coville of the U. S. Department of Agriculture has found how blueberries differ from ordinary plants in their methods of nutrition and in their soil requirements. With this knowledge as a basis, he has worked out a system of pot culture under which these plants attain a development beyond all previous expectations, plants only two years of age having been successfully fruited. The indications are that ultimately improved varieties of this fruit will be grown successfully on a commercial scale. The blueberry will grow successfully only in acid soils. The most promising situations for experiments in the field culture of the blueberry appear to be either peat bogs or sandy uplands treated with upland leaf peat. A full account of Coville's investigations was reported

in Bulletin No. 193 of the Bureau of Plant Industry, entitled "Experiments in Blueberry Culture."

**PLANT BREEDING.** G. W. Oliver of the U. S. Department of Agriculture announced a new process of preventing fecundation by undesirable pollen which should prove of great importance to commercial as well as scientific plant breeders. Oliver's method, which he calls "depollination," consists in removing the pollen from the stigma before fecundation has taken place by means of a tiny jet of water played on each flower head for a few seconds. All traces of pollen may thus be removed and the stigmatic surfaces of the pistils are not injured for subsequent pollination, providing the moisture adhering to them is largely removed by means of bibulous paper. Several genera of the *Compositæ* have been worked on with complete success and the method is applicable to all flowers having reproductive organs too small to be successfully manipulated by the ordinary methods of emasculation. Water may also be applied to the stigmas of larger flowers when there is any doubt whether pollen has recently gained access to the stigmas previous to artificial pollination. Oliver's "New Methods of Plant Breeding" are fully described in Bureau of Plant Industry Bulletin No. 167.

R. Pearl and F. M. Surface of the Maine Experiment Station have been conducting experiments in breeding sweet corn with a view to helping both the farmer and the packer. They secured a marked gain in earliness after the first year's selection, but no further gain in earliness from two subsequent years' selections. The first year's selection was also followed by a marked improvement in respect to the character of the ears. Both earliness and better-shaped ears have been maintained in subsequent crops where the corn has been grown in localities to which it is well adjusted.

It is the general rule for a hybrid of two natural species not to set seed with its own pollen. Through the agency of annular decortication, J. Brzezinski, an Austrian investigator, successfully fruited the common horseradish (*Cochlearia armoracia*), which plant has rarely been known to produce seed. A study of the resulting seedlings leads Brzezinski to conclude that the common horseradish is a hybrid, the distinct parent types of which were manifested in the seedlings.

**LITERATURE.** Among the more important horticultural works appearing recently may be mentioned: A. Janson, *Der Grossobstbau* (Berlin, 1909), a treatise on commercial fruit-growing; P. Pacottet and J. Dairat, *Cultures de Serres* (Paris, 1910), treats of fruit-growing under glass; C. Mariboe, *Fortegnelse over Dansk Havebrugslitteratur fra 1546-1908* (Copenhagen, 1909), is a bibliography of Danish horticulture containing 456 separate references; W. Paddock and O. B. Whipple, *Fruit-Growing in the Arid Regions* (New York, 1910), an account of improved fruit-growing practices in the intermountain country of the western United States; L. Woolverton, *The Canadian Apple-Grower's Guide* (Toronto, 1910), a complete guide to apple culture, marketing, and varieties; H. H. Hume, *The Pecan and Its Culture* (Glen Saint Mary, Fla., 1910), a revised edition; H. J. and W. P. Wright, *The Vegetable Grower's Guide* (London, 1908), a two-volume treatise for both

private and market gardeners; J. Weathers, *French Market Gardening* (London, 1909), gives an insight into the intensive methods of growing vegetables in France, with their adaptation to English conditions; H. Rawson, *Success in Market Gardening* (New York, 1910), presents the up-to-date methods of commercial vegetable culture in the eastern United States; H. F. Macmillan, *A Handbook of Tropical Gardening and Planting* (Colombo, Ceylon, 1910). Of the works on ornamental gardening may be mentioned the following: A. Buyssens, *Manuel de Floriculture* (Vilvoorden and Paris, 1909); A. C. Apper, *Ornamental Shrubs of the United States (Hardy Cultivated)*, (New York and Chicago, 1910); H. J. and W. P. Wright, *Beautiful Flowers and How to Grow Them* (London, 1909), a valuable popular two-volume treatise on floriculture indoors and in the garden; and S. Parsons, *Landscape Gardening Studies* (New York, 1910).

**HOSPITALS.** Among the more notable gifts to hospitals in New York City during 1910 were the following: A gift of \$1,500,000 was made to the Presbyterian Hospital by Mr. E. S. Harkness and others unnamed; the will of D. O. Mills gave \$100,000 to the Home for Incurables; Mrs. Anna Woerishoffer gave \$100,000 to the German Hospital for a children's ward; Mrs. H. H. Jenkins gave \$25,000 to the Lying-in Hospital for a special study of puerperal fever; St. Luke's Hospital received about 6000 acres of coal lands by the will of N. I. Rees. In connection with the Rockefeller Institute for Medical Research, a hospital building was erected for the study of special diseases and biological problems. The building contains only seventy beds, but is rich in every form of apparatus for investigating and curing disease. A relatively large staff of physicians and nurses is in attendance, and a unique feature is that members of the medical staff will devote their entire time to the work of the hospital. No fees are accepted from patients. The new Polyclinic Hospital was started in West 50th Street. The structure will be eleven stories high and cost \$50,000. The new People's Hospital, built and opened to the public through the efforts of Austro-Hungarian citizens, was dedicated on June 21. A unique sociological experiment was undertaken through the generosity of Mrs. W. K. Vanderbilt. A hospital was planned in which delinquent children appearing in the Children's Court could be examined and treated, either medically or surgically, the idea being that a majority of mental and moral failings are dependent on physical defects, many of which are removable by medical science. The Metropolitan Insurance Company purchased a tract of land at Mount McGregor, Saratoga County, as a site for a sanitarium for its tuberculous employees. A new hospital was begun on Surf Avenue, Coney Island, by the Brooklyn Children's Aid Society at a cost of \$90,000. Ground was cleared in Philadelphia for the erection by Mr. Henry Phipps of a Tuberculosis Hospital in connection with the University of Pennsylvania. The expenditures will exceed \$5,000,000 and every phase of the subject will be investigated. Mr. Phipps also gave \$1,000,000 to the Psychiatric Clinic of the Johns Hopkins Hospital at Baltimore, for which the excavation was begun, and which is to be under the management of Director Adolf Meyer, M. D. In Iowa the new Woman's Infirmary in con-

nection with the State Hospital for the Insane at Mount Pleasant was opened for the reception of patients. The building cost \$67,500 and will accommodate seventy patients. Work was begun on the new hospital at Monmouth, Ill., the completion of which is looked for early in 1911. Plans were perfected for the new \$3,000,000 Cook County (Ill.) Hospital, comprising eleven buildings—six medical, two surgical, one administration and detention building, a pathological building and a morgue. Roof gardens and outdoor camps for tuberculosis patients are included in the plans. Among the innumerable hospitals opened or added to or projected in various parts of the country may be mentioned: The Mission Hospital at Pensacola, Fla.; the Deming (N. M.) Ladies' Hospital; the annex to the Phoenixville (Pa.) Hospital, costing \$25,000; the St. Louis Skin and Cancer Hospital, which is a new four-story modern building; the Burlington (Wash.) Hospital; the Sacred Heart Hospital at Spokane, Wash.; an annex to St. Vincent's Hospital, Portland, Ore.; the Public Hospital at San Francisco, with five new buildings costing \$220,000; the Peninsular Hospital at Palo Alto. A new State hospital for the insane at Yorktown, N. Y., was projected and operations for its development were begun.

**FOREIGN COUNTRIES.** In Canada, on account of the rapidly growing population in the Northwest, many new hospitals were rendered necessary and activity in building was notable. Hospitals were erected or in process of completion in Westminster, B. C., Regina and Areola, Sask., and Edmonton, Alberta. The new Lady Grey Hospital at Ottawa was opened on February 11th. Arrangements have been made for the construction of a hospital, to be called Melchor Ocampo, at Vera Cruz, Mexico. The building will cost \$100,000 and will replace the old San Sebastian Hospital now fallen to decay. For the purpose of caring for foundlings in Vienna, a large institution—the "Central Kinderheim"—was erected and formally opened by the Emperor of Austria. It consists of a large building capable of housing 410 children, together with 280 mothers and wet-nurses and 64 nurses. The International Hospital was opened in Adana, Turkey, to meet the pressing need following the massacres, which entailed much suffering and sickness. This is the only hospital in a district containing 70,000 people, except one for Turkish soldiers. There will always be accommodation for Americans and other foreigners; tourists and foreign workmen will be benefited especially. The new Philippine General Hospital at Manila was opened in September to government employes and the public. The building is of reinforced concrete, and when fully equipped promises to be the finest hospital plant in the Orient.

**HOURS OF LABOR.** See **LABOR LEGISLATION.**

**HOUSE FLY.** See **ENTOMOLOGY.**

**HOUSE OF GOVERNORS.** This title is applied to the conference of State executives, which began with the famous conference called together in May, 1908, by President Roosevelt. (See **CONSERVATION.**) The conference has no relation to the national government and is designed to deal almost wholly with matters of State legislation. Among the important topics discussed at its meetings have been marriage and divorce, pure food, insurance, extradition,

child labor, direct primaries, convict labor, prison reform, inheritance tax, and the conservation of natural resources. The conference was held again on January 18, 1910, in Washington, governors of thirty States meeting as an independent, deliberative body for the purpose of "initiating, inspiring, and influencing uniform laws." President Taft welcomed the governors with a reception and made an address in which he declared that he regarded the movement as of the greatest importance. "You are here," he said, "for the purpose of considering those subjects of laws in respect to which the legislation of the States ought to be uniform, and to take the course of making up for what some people point out as a defect of the Federal Constitution, in that it does not give jurisdiction to the Federal government with respect to certain purposes which can only be accomplished by joint action of the States." The opening address was made by Governor Hughes of New York. In this he outlined the scope of the conferences. This, he said, embraces at least three groups of questions: the first relates to uniform laws; the second relates to matters of State comity where, though absolute uniformity may not be expected, causes of friction may be avoided and the general welfare may be promoted by accommodating action; and the third relates to matters which, though of local concern, can be better treated in the light of the experience of other States. It would be impossible, he said, for governors in conference to undertake the consideration of uniform laws, but their united consideration of their importance and of the proposed statutes drafted by the commissioners of their appointment, will bring these matters into deserved prominence and bespeak for the progress of uniform legislation a much needed impetus.

He suggested among the topics to be considered the conservation of natural resources, financial administration, including taxation and appropriations, the supervision and the regulation of banks, insurance companies and public service corporations. He also suggested organization by which committees should be able in the intervals of the conferences to draw up a programme and present topics somewhat developed by correspondence. The Honorable Seth Low, as a representative of the Civic Federation, suggested that the conference consider uniform laws on divorce, negotiable instruments, warehouse receipts, bills of lading, pure food, the white slave traffic, and other subjects.

On the second day of the conference the various governors made addresses. Resolutions were presented by Governor Eberhart of Minnesota, defining the jurisdiction of Federal and State courts in matters involving interstate commerce. These were referred to a committee, which, however, took no action. Governor Willson of Kentucky asserted the right of the State of control over water power as against Federal control, and in this he was supported by Governor Fort of New Jersey. Governor Quinby of New Hampshire and Governor Hughes of New York called attention to the forests as well as water power, a priceless possession of the States. Governors Brooks of Wyoming and Shafroth of Colorado urged the right of the States to the water power. Governor Hadley of Missouri addressed the conference on railroad rate legislation and declared that rates should be controlled by the government and not



Copyright by Royal Photo. Co., Louisville, Ky.

**Top Row, Left to Right —** Marshall, Indiana ; Brown, Georgia ; Harmon, Ohio ; McGovern, Wisconsin ; Weeks, Connecticut ; Pothier, Rhode Island ; Kitchen, North Carolina ; Shafroth, Colorado ; Sloan, Arizona ; Densen, Illinois ; Spry, Utah

**Bottom Row, Left to Right —** Eberhardt, Minnesota ; Ansel, South Carolina ; Plaisted, Maine ; Hadley, Missouri ; C. Neil, California ; Willson, Kentucky ; Fort, New Jersey ; Noel, Mississippi ; Mann, Virginia ; Draper, Massachusetts

**"HOUSE OF GOVERNORS"**

3  
1  
0  
2

by the railroads. The conference adjourned on January 20, after hearing a brief plea from Mrs. Harriet Stanton Blatch of the Equality League, asking that the political position of women be one of the topics considered by the governors.

The meeting adjourned until some time between Thanksgiving and Christmas, 1910, and it was decided that the meeting should be held in a State capital instead of in Washington. A committee on arrangements was appointed to apportion the expenses of the conference among the States according to population, so that the governors might recommend to the legislatures the necessary appropriations.

The third conference met at the invitation of Governor Willson of Kentucky at Louisville and Frankfort, Ky., November 29 to December 1, 1910. Governors of 24 States were in attendance. The session was opened by Governor Willson. President Taft sent a message to the conference reaffirming his sympathy with its objects. Woodrow Wilson, governor-elect of New Jersey, made a notable address on the general functions and purposes of the conference. Other important addresses were made by Governors Hadley of Missouri, Norris of Montana, Noel of Mississippi, Draper of Massachusetts, Fort of New Jersey and others. Among the questions discussed were employers' liability, direct primaries, "new nationalism," and automobile reciprocity. The subject of woman suffrage was presented by Miss Laura Clay, president of the Kentucky Equal Rights Association.

The fourth conference will be held at Spring Lake, N. J., in 1911.

**HOUSE OF LORDS.** See GREAT BRITAIN, *History*.

**HOUSING AND TOWN PLANNING ACT.** See GREAT BRITAIN, *History*, and MUNICIPAL GOVERNMENT.

**HOUSING PROBLEM.** See CONGESTION OF POPULATION.

**HOWE, F. C.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**HOWE, JULIA (WARD).** An American philanthropist, publicist and poet, died October 17, 1910. She was born in New York City in 1819, the daughter of Julian Ward, a wealthy and prominent citizen of New York City. She was educated privately and acquired a knowledge of German and Italian, music and philosophy. Her father died when she was twenty years of age, and this event for a time plunged her into profound melancholy. Previous to that time she had been a liberal thinker in religious matters, but the next few years of her life she devoted to an attentive study of the Bible, and from that time to her death she was deeply religious, but never quite approached the strict Puritan orthodoxy of New England. At the age of twenty-three, when on a visit to friends in Boston, she met Samuel Gridley Howe, the noted philanthropist, and in the same year, 1842, they were married. They immediately went to Europe where her husband's heroic labors for Greece in the struggle for independence, his devotion to the education of the blind, and his activity in the anti-slavery movement had won for him the title of "the new Bayard." In London, where they lived for some time, Mrs. Howe became friendly with Dickens, Landseer, Henry Hallam, Wordsworth, Mrs. Edgeworth, Florence Nightingale, and other notable persons.

After travelling through the continent of Europe they returned to Boston. They found the city a hotbed of fermenting ideas, which included transcendentalism, abolition and liberal thought in religion. Mrs. Howe took a prominent part in these discussions. She established strong friendships with William Lloyd Garrison, Theodore Parker, Charles Sumner, James Russell Lowell and others. With her husband, she conducted the *Boston Commonwealth*, an anti-slavery paper, prior to the Civil War. She also wrote poems, articles for periodicals, and a five-act blank verse tragedy, *The World's Own*, which was produced at Wallack's Theatre in 1855. She also wrote *Hippolytus* for Edwin Booth, but this was never produced. In addition to this literary work she made excursions into the fields of philosophy, ethics and religion. After the death of her husband in 1876, she joined aggressively in the movement for woman suffrage, which she came to look upon as the foremost question of the day. She was one of the founders of the New England Woman's Club and for the remainder of her life she was an active worker for the cause of the political enfranchisement of women. Important as was her work in abolition and woman suffrage, Mrs. Howe's name will probably endure longest as the author of the famous hymn, "The Battle Hymn of the Republic" which she wrote during the Civil War. She often told how it came to be written and named. During the war she went out from Washington with the Rev. Dr. McClark to witness a review of the Union troops. "The road was so filled with soldiers," she wrote, "that our return from the parade grounds of the city was very tedious, and to pass the time away we sang 'John Brown's Body.' Some of the marching regiments took it up and it was passed along the road until the echoes reverberated for miles. My pastor asked me why I did not put the spirit of the song into some graceful and expressive words. I told him I had tried. One morning soon after that I awoke suddenly about daylight and the lines I wanted were running vaguely through my mind. I arose and put them down. They were published in the *Atlantic Monthly*, and the editor named it 'The Battle Hymn of the Republic.'"  
This was in 1861 and James Russell Lowell was at that time editor of the *Atlantic*. Mrs. Howe wrote other poems which, in point of merit, were probably superior to "The Battle Hymn of the Republic," but that is the work by which her fame was most widely established. Mrs. Howe was a contemporary and not the least of the famous company of poets, philosophers and humanitarians who lived in and around Boston in the middle and latter part of the 19th century. Her *Reminiscences*, published in 1889, are filled with anecdotes of Washington Irving, Charles Dickens, John Brown, Ralph Waldo Emerson, Wendell Phillips, Lowell, Holmes, and Longfellow. Her interest in current matters continued almost to the day of her death. In 1909 she made several appearances, preaching sermons and advocating woman suffrage. She left four children, Henry Marion Howe, Mrs. Florence Howe Hall, Mrs. Laura E. Richards and Mrs. Maude Howe Elliott. Her eldest daughter, Julia Romana, died in 1886. Among her published works were the following: *Passion Flowers* (poems); *Words for the Hour*; *A Trip to Cuba*; *The World's Own*; *From the Oak to the Olive*; *Later Lyrics*; *Sex and Education*;

*Memoir of S. G. Howe; Life of Margaret Fuller; Modern Society; Is Polite Society Polite?; From Sunset Ridge* (poems); *Reminiscences* (1899); and *Sketches of Representative Women of New England* (1905).

**HOWELLS, W. D.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*, and *Essays and Literary Criticism*.

**HOYT, HENRY MARTYN.** An American lawyer and public official, Counselor of the State Department of the United States, died November 20, 1910. He was born at Wilkes-Barre, Pa., in 1856 and graduated from Yale College in 1878. After postgraduate courses in law at the University of Pennsylvania, he received his degree from that institution in 1881. The same year he was admitted to the bar. He was appointed assistant cashier of the United States National Bank and after serving in that position for three years he became, first, treasurer, and later president, of the Investment Company of Philadelphia. He gave up his financial activities in 1893 and devoted himself to the practice of law in Philadelphia. He was appointed assistant attorney-general by President McKinley, serving in that office from 1897 to 1903. In the latter year he was appointed solicitor-general of the United States. He retained this office until 1909 when, on the creation of the office of Counselor of the State Department, he was appointed by President Taft to fill that office. He took part in 1910 in the negotiations carried on between Canadian and American officials for a reciprocity treaty between the United States and Canada.

**HOYT, LUCIUS WARNER.** An American lawyer and educator, died June 28, 1910. He was born at Hartford, Mich., in 1860 and graduated from the Michigan Agricultural College in 1882. He studied law and graduated from the law department of Columbia University in 1889. In the same year he was admitted to the bar. In 1892-3 he was associate professor of law in the University of Denver and in 1893 was made full professor. From 1902 to the time of his death he was dean of the law department of that university.

**HOYT, WAYLAND.** An American Baptist clergyman, died September 28, 1910. He was born in 1838 and graduated from Brown University in 1860 and from the Rochester Theological Seminary in 1863. In the same year he was ordained to the ministry. He occupied several pastorates from 1863 to the time of his death, including the Tabernacle Church in New York, 1873-4, Shawmut Avenue Church, Boston, 1874-6, Memorial Church, Philadelphia, 1882-89, and the First Church, Minneapolis, 1889-95. He was pastor of the Epiphany Church, Philadelphia, from the latter date until the time of his death. He was professor of religion and science and the art of public speech in the theological department of Temple University, and was a member of the Board of the American Baptist Missionary Union and of the boards of other Baptist associations. Among his published works are: *Hints and Helps in the Christian Life* (1880); *Along the Pilgrimage* (1884); *Home Ideals* (1904), and *Teaching of Jesus Concerning His Own Person* (1907). He also contributed to many newspapers and magazines.

**HUBBELL, G. A.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**HUDSON MEMORIAL WATER GATE.** See WATER-GATE, FULTON MEMORIAL.

**HUDSON TUNNELS.** See RAILWAYS and TUNNELS.

**HUGGINS, Sir WILLIAM.** An English astronomer, died May 12, 1910. He was born in London in 1824 and was educated at the City of London School and by private teachers. He continued his studies in mathematics, classics and modern languages, natural philosophy, chemistry, electricity, magnetism and other branches of physical science, with particular attention to astronomy. In 1852 he was elected to the Microscopical Society and for several years made a microscopical study of animal and vegetable physiology. In 1856 he built an observatory at his residence at Upper Tulse Hill, London, and mounted therein a telescope with an eight-inch aperture. His first observations were of the double stars, and he made, in addition, careful drawings of Mars, Jupiter, and Saturn. His work of greatest distinction, however, was in spectrum analysis. In 1865 he was elected a fellow of the Royal Society and in the following year received one of the Society's medals for his researches and discoveries by means of the spectroscopic applied to the heavenly bodies. In 1867 the Royal Astronomical Society awarded its gold medal jointly to him and to Dr. Miller. Sir William's researches led him to the conclusion that the nebulae are not simply clusters of stars too distant to be observed singly, but isolated aggregations of a gaseous mass from which the stellar system is supposed to have been formed. From the spectra of comets he discovered that part of their light is different from the solar light and he proved the existence of carbon in them. He first introduced photography into astronomy and so opened up vast realms of which the human eye otherwise could discern nothing. He devised a spectroscopic method for observing the red prominences of the sun and proved the existence of calcium in them. After 1875, when the dry plates were available, he gave himself largely to the work of obtaining photographs of the ultra-violet section of the stellar spectra. He was the first to apply Doppler's principle to the measurement of stellar velocities toward the stellar system or away from it. In 1875 he married Margaret, daughter of John Murray, a solicitor of London. She was an astronomer of considerable attainments and many of the experiments carried on after their marriage were conducted with her aid. Sir William Huggins was president of the Royal Astronomical Society in 1876-8, of the British Association for the Advancement of Science in 1891, and of the Royal Society, 1900-1905. He received medals from most of the important English and foreign astronomical societies. With Lady Huggins he published, in 1900, *An Atlas of Representative Stellar Spectra*, which received the Actonian prize of the Royal Institution. In 1906 he published *The Royal Society, or Science in the State*. He wrote, in addition, many original papers in the transactions of various scientific societies. He was also a noted collector of antique works of art. He was one of the most eminent of British scientific men.

**HUGHES, CHARLES EVANS.** See NEW YORK; UNITED STATES, *Federal Judiciary*; LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**HUMANE ASSOCIATION, AMERICAN.** A federation of societies and individuals for the prevention of cruelty, especially cruelty to children and animals, organized in 1877 and incor-



Copyright, Van der Weyde, New York

JULIA WARD HOWE

४१०

porated in 1903. The Association holds annual meetings in various cities, and under its auspices, in connection with its 34th annual meeting, there was held in Washington, October 10-15, 1910, the first American International Humane Conference. This conference was called to discuss certain practical problems relating to the prevention of cruelty to animals and children, to exchange views concerning methods and policies now practiced, to encourage unity and co-operation among humanitarians and to promote humane progress throughout the world. The sessions of October 10, 11, and 12 were devoted exclusively to the subject of child protection and addresses were made by experts on this subject. Among those who contributed to the discussion were Mr. A. Doria, the General Director of Prisons and Reformatories in Italy, who read a paper entitled "The Methods Followed in Italy for the Reformation of Young Girl Criminals." Mr. Nicholas Louchinsky of St. Petersburg read a paper on "The Reform of Criminal Children in Russia." Mr. Tong Kaisan of Peking, China, read a paper of unusual interest on "The Anti-Foot-Binding Movement in China." "Child Protection in Australia" was discussed by Mrs. D. R. McConnell of Brisbane, Australia, and others. "Work for the Protection of Children in Canada" was the title of a paper by Mr. W. F. Carsley, President of the Montreal Society for the Protection of Women and Children. Many other papers were read on questions relating to the care of children in the United States and in foreign countries. The sessions of October 13, 14, and 15, were devoted to animal protection. Among the important contributions were papers on "Japanese Attitude toward Animals," by M. Honda of Tokio, Japan; "Have Animals Rights?" by Henry S. Salt, Secretary of the Humanitarian League, London, Eng.; "Report of the League for the Protection of Animals for the German Empire," by Otto Hartmann of Cologne, Germany; "Humane Conditions in Norway," by Karl Schiørn of Tonsberg, Norway. There were also important papers and speakers from France, Holland, Sweden, Spain, Portugal, Argentina, and other foreign countries. The officers of the Association in 1910 were: President, Dr. W. O. Stillman; Vice-Presidents, Albert Leffingwell, Miss Caroline Earle White, and E. W. Newhall; Secretary, Nathaniel J. Walker of Albany, N. Y. President Taft acted as honorary president of the International Conference and is one of the vice-presidents of the Association.

**HUME, MARTIN ANDREW SHARP.** An English historical writer and educator, died July 1, 1910. He was born in London in 1848 and was educated in Madrid, where branches of his family had resided for over a century. During the campaign of 1878-79 he was attached to the Turkish army. In 1885 he unsuccessfully contested a seat for Parliament and again in 1886, 1892 and 1893. He travelled much in South America and Africa. His chief historical writings dealt with Spanish subjects and he was an authority on the relations of Spain and England, especially in the period of the Renaissance. He edited the Spanish State Papers of the Public Record Office, was lecturer in Spanish history and literature at Pembroke College, Cambridge, was examiner in Spanish and lecturer in the University of London and was examiner in the University of Edinburgh. He was a major, retired, of the Third Battalion, Essex

Regiment. His numerous publications include: *Chronicles of Henry VIII.* (1889); *Courtships of Queen Elizabeth* (1896-1904); *Sir Walter Raleigh* (1897); *Spain, its Greatness and Decay* (1898); *Modern Spain* (Story of the Nations Series) (1899); *A History of the Spanish People* (1901); *The Love Affairs of Mary, Queen of Scots* (1903); *Cambridge Modern History*, vols. 3 and 4 (1904-5); *Spanish Influence on English Literature* (1905); *Queens of Old Spain* (1906); *Through Portugal* (1907); *The Court of Philip IV.* (1907); *Two English Queens and Philip* (1908); *Queen Elizabeth and Her England* (1910). He wrote also many historical articles in the principal English and Spanish magazines and reviews. He was an academicien of the Royal Spanish Academy, of the Royal Spanish Academy of History, and of the Royal Galatian Academy.

**HUMPERDINCK, ENGELBERT.** See MUSIC.  
**HUMPHREY GAS PUMP.** See PUMPING MACHINERY.

**HUMUS.** See SOILS.

**HUNEKER, J. G.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism.*

**HUNGARY.** See AUSTRIA-HUNGARY.

**HUNNEWELL, JAMES FROTHINGHAM,** American merchant, author and bibliographer, died in November, 1910. He was born in Charlestown, Mass., in 1832. He was educated in private schools and engaged in business, but found time to write extensively on historical subjects. Among his published works are: *Bibliography of the Hawaiian Islands and Civilization in the Hawaiian Islands* (1869); *The Lands of Scott* (1871); *Bibliography of Charlestown and Bunker Hill* (1880); *Historical Monuments of France* (1884); *The Imperial Island* (1886); *A Century of Town Life* (1888); *Triumph of Early Printing* (1909) and *Historical Museums* (1909). He also edited *The Relation of Virginia* by Henry Spelman (1869-72), and *Early American Poetry* (5 vols. with introductions, 1894-1899).

**HUNT, WILLIAM.** See LITERATURE, ENGLISH AND AMERICAN, *History.*

**HUNT, WILLIAM HOLMAN.** An English artist, died Sept. 7, 1910. He was born in London in 1827. His father was a poor man of the middle class who was not able to give his son even an ordinary education. While he was still a boy he was apprenticed to an auctioneer as a clerk and a few years of uncongenial work followed. Even before this he had shown artistic aptitude, but his father would not give his consent to his following his bent. During his apprenticeship he made several drawings which attracted attention and when his indentures had expired he struck out boldly to become an artist. He painted portraits three days a week and the rest of the time he spent in the British Museum copying pictures. He tried three times to enter the Academy before he succeeded. When he was seventeen years of age he first met Millais, who was then only fifteen, but who had already won the principal medal in antique in the Academy. A friendship then began between the two artists which continued for years. Hunt worked intelligently and in 1844 he had completed his first Academy picture. It was a portrait of a child entitled "Hark." With Millais he founded in 1848 the modern school, known as the Pre-Raphaelite Brotherhood. With them other well-known artists soon allied

themselves. The letters P. R. B. were signed to all the pictures painted by these artists and it was intended that their meaning should be kept secret. Hunt asserted in a letter written shortly before his death that Rossetti had caused the breaking up of the original Pre-Raphaelite Brotherhood by revealing the mystic meaning of these initials. The pictures of the original Pre-Raphaelite Brotherhood were met with harsh criticism. They were painted in a style which was supposed to follow that of the old masters, but in which the British critics and public of that day saw little merit. In the early 50's Hunt went to the Holy Land and it was there that he gained his inspiration for many of his greatest works. He revisited Palestine many times and among the pictures painted in that country were some of his best known, including "The Finding of the Saviour in the Temple" (1860), "The Shadow of the Cross" (1873), "Christ Among the Doctors" (1890). Perhaps the best known of his works was the famous "Light of the World." The "Lady of Shalott" and "Nazareth" are two other canvases which rank high in the artist's works.

**HURD, CHARLES EDWIN.** An American literary critic, died April 21, 1910. He was born in 1833. He taught school for a short time during his youth and when about twenty years of age settled in Boston, where he found occasional employment on newspapers. He afterwards attempted a stage career, but returned soon to journalism. During the Fenian raid in Canada he acted as artist correspondent for Frank Leslie's *Illustrated Weekly*. He was successively editor of the *Erie Despatch*, and on the staff of a Providence paper and several Boston papers. In 1875 he became literary editor of the *Boston Evening Transcript*, and held this position until 1901, when he retired. He originated and conducted the notes and queries and genealogical departments on the *Transcript*, and contributed largely to the art, dramatic and editorial departments. Among his published writings are the following: *New England Library of Genealogy and Personal History* (1901); *History of the United States* (4 vols., 1906); also many translations from the French, German, Danish, Spanish, Swedish and Norwegian.

**HUTCHINS, H. B.** See UNIVERSITY OF MICHIGAN.

**HUTH, ALFRED HENRY.** An English bibliophile and author, died October 14, 1910. He was born in 1850 and was educated at Rugby and Berlin University. He inherited a magnificent collection of rare and early printed books gathered by his father, Henry Huth. His father was an intimate friend of Henry Thomas Buckle, historian, and the son became the latter's biographer in the *Life and Writings of Henry Thomas Buckle*. He wrote also *Marriage of Near Kin* (1875), Goethe's *Faust* in English verse (1880) and *Adventures of Matthew Dudgeon* (1894).

**HUTTON, E.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description, Biography*.

**HYBRIDIZATION.** See BIOLOGY.

**HYDRO-ELECTRIC PLANTS.** See TRANSMISSION OF POWER.

**HYDROGEN.** See ATOMIC WEIGHTS.

**HYGIENE.** BILL FOR A NATIONAL DEPARTMENT OF PUBLIC HEALTH. The Owen bill, "es-

tablishing a Department of Public Health and for other purposes," was read twice in the Senate and referred to the Committee on Public Health and National Quarantine. The bill aims to create a separate department of the national government and provides for a "Secretary of Public Health who shall be appointed by the President a Cabinet officer" with like tenure of office. The bill also aims to unite all the departments and bureaus concerned in medical or sanitary matters, including the Marine Hospital service, and contemplates the establishment of a Bureau of Biology, a Bureau of Chemistry, a Bureau of Veterinary Service, and a Bureau of Sanitary Engineering.

**PURIFICATION OF WATER.** The purification of water by means of bleaching-powder, an impure product composed principally of calcium hypochlorites, has assumed practical importance during the past two years. This substance had previously been used for sewage disinfection and for the purification of typhoid-infected water in Maidstone, England. The use of bleaching-powder for the purification of the Jersey City water supply in 1908-9 stimulated interest in the subject during the past year. The degree of purification is indicated by the fact that, while bacteria in the untreated water ranged from 30 to 1600, the water treated by bleaching-powder contained but 15. Out of 455 tests the colon bacillus was found in only one sample. The simplicity and low cost of the process are remarkable. In an emergency a small plant can be put in operation within a few days and the cost averages under 40 cents for 1,000,000 gallons. A number of American cities have already employed the hypochlorite method, and among these are Harrisburg, Pa., Quincy, Ill., Minneapolis, Montreal, Toronto and Milwaukee. See CHEMISTRY and WATER PURIFICATION.

A simple method of purifying drinking water is recommended to campers, prospectors and travelers by the Ontario health authorities. A level teaspoonful of chlorid of lime is rubbed up in a cup of water. This is diluted with three cups of water, and a tablespoonful of this mixture is thoroughly mixed into two gallons of the water to be purified. This will give between four and five parts of free chlorine to a million parts of water, which is sufficient to destroy in ten minutes all typhoid or cholera bacilli and dysentery-producing germs, yet leaving the water without taste or odor. This method has been found effectual in purifying the germ-laden water of Toronto Bay.

**INTERNATIONAL MEETINGS.** The Committee of the International Office of Public Hygiene held a meeting in Paris in April, 1910. Nineteen Powers were represented, viz.: Belgium, Brazil, Bulgaria, Egypt, Spain, the United States, France, Great Britain, India, Australia, Italy, Mexico, Peru, Prussia, Russia, Serbia, Sweden, Switzerland, and Tunis. At this meeting the delegates examined the various questions relating to the extermination of rats and the adoption of international regulations requiring the extermination of rats on merchant ships. They also discussed the question of a uniform method of preparing antidiaphtheritic serum, the question of weekly statistics on epidemic diseases, and the disinfection of water taken to insure the stability of water ballast ships.

The Third International Congress of Educational Hygiene was held on August 2, 1910, in Paris, at the Sorbonne, under the honorary



WILLIAM HOLMAN HUNT

11705

presidency of Professor Landouzy of the Paris College of Medicine. The Congress was attended by 1600 persons, most of whom were from the northern countries of Europe, especially Sweden, Denmark, Norway, and England.

**ICELAND.** The chief dependency of the Danish crown. Area, 40,456 square miles; population (1901), 78,470. Total imports (1907), 17,550,000 kroner; exports, 11,498,000 (1 krone = 26.8 cents). Iceland has its own constitution and administration. A minister for Iceland (1910, Bjorn Jonasson), nominated by the king and residing at Reikjavik, is the responsible head of the government. The legislative body is the Althing with 40 members, 34 elected by popular suffrage and 6 nominated by the king.

**IDAHO.** One of the Mountain Division of the United States. It has an area of 84,313 square miles, of which 534 square miles are water. Its capital is Boise.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 325,594 as compared with 161,772 in 1900 and 88,548 in 1890. The increase in the decade from 1900 to 1910 was 101.3 per cent. This was the largest percentage of increase shown in any of the States except Washington and Oklahoma. The State ranks forty-fifth in point of population, whereas in 1900 it ranked forty-sixth. For population of the larger cities and towns see the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** The most valuable of the mineral products of the State is lead, of which 97,183 tons were produced in 1909, as compared with 98,464 tons in 1908. The State also produced a small quantity of spelter in 1909. Next in point of value to lead is the production of silver, of which, in 1910, 6,686,016 fine ounces were produced, as compared to 6,755,900 fine ounces in 1909. The value of the gold production in the State in 1910 was \$992,930, as compared with a value of \$1,344,200 in 1909. The production of copper in 1909 was 7,096,132 pounds, as compared with 7,256,068 pounds in 1908. The copper product of 1910 was about the same as 1909. A small quantity of coal is mined. In 1909 this amounted to 4553 tons, as compared with 5429 tons in 1908. Among other mineral products of the State are lime, salt, stone and zinc.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909 and 1910 were as follows:

	Acreage	Production	Value
Corn, 1910.....	6,000	192,000	\$136,000
1909.....	6,000	184,000	138,000
Winter Wheat, 1910 ..	345,000	8,176,000	5,887,000
1909.....	315,000	9,135,000	7,947,000
Spring Wheat .. 1910 ..	217,000	4,427,000	3,187,000
1909.....	215,000	5,330,000	4,637,000
Oats, 1910.....	184,000	7,084,000	2,976,000
1909.....	175,000	7,788,000	3,844,000
Barley, 1910.....	65,000	2,145,000	1,072,000
1909.....	62,000	2,480,000	1,462,000
Rye, 1910.....	4,000	80,000	63,000
1909.....	4,000	86,000	60,000
Potatoes, 1910.....	24,000	3,408,000	2,215,000
1909.....	28,000	5,000,000	2,400,000
Hay, 1910.....	491,000	41,473,000	13,257,000
1909.....	477,000	1,359,000	12,367,000

a tons.

**FINANCE.** The report of the State Treasurer showed a balance in the treasury at the close of the fiscal year ending September 30, 1909, of \$1,211,277. The total receipts for the fiscal year 1910 were \$2,603,707 and the total disbursements amounted to \$2,847,267, leaving a bal-

ance at the close of the fiscal year of \$967,716. The total amount of State bonds outstanding October 22, 1910, amounted to \$1,397,250.

**CHARITIES AND CORRECTIONS.** The charitable and correctional institutions supported by the State, with the amounts disbursed for their maintenance during the biennial period 1908-10, were as follows: State Penitentiary, \$16,357; Soldiers' Home, \$14,446; North Idaho Insane Asylum, \$22,430; State School for Deaf and Blind, \$24,999; Idaho Industrial Training School, \$5274.

#### POLITICS AND GOVERNMENT

There was no session of the legislature in 1910, as the sessions are biennial and the last was held in 1909. The next session began January 2, 1911.

**ELECTIONS.** Primaries for the nomination of candidates for governor were held in September, and as a result of these elections Governor James H. Brady was renominated by the Republicans and James B. Hawley was nominated by the Democrats. This was the first direct primary election held in the State. Burton L. French, candidate of the Progressive Republicans for Congress, defeated Congressman Thomas R. Hanner, Republican nominee. Arthur W. Bowen received the Democratic nomination for Congress over John L. Sewell. In the elections held on November 8 the Democrats were successful, electing James B. Hawley governor over Governor James H. Brady by 895 votes.

**OTHER EVENTS.** The year 1910 was marked by the most disastrous forest fires in the history of the State. These fires began early in August and raged in the Cœur d'Alene region in and around the towns of Wallace, Murray and Mullan. They continued almost without intermission for several weeks. On August 21, Wallace and several smaller towns in the State were almost entirely destroyed and many lives were lost.

The workings of the new local option law proved unsatisfactory and the 11th session of the legislature, which is in session as the YEAR BOOK is being printed, is devising means to render prohibition in "dry" territory more effective. An important development in the latter part of 1910 was the decision of the Federal government to spend about \$7,000,000 on Idaho reclamation projects. All but \$500,000 of this amount will be expended near Boise on the Payette-Boise project.

**STATE OFFICERS.** Governor, James H. Hawley; Lieutenant-Governor, Lewis H. Sweetzer; Secretary of State, W. L. Gilford; Treasurer, O. V. Allen; Auditor, S. D. Taylor; Attorney-General, D. C. McDougall; Superintendent of Education, Grace Shepard—all Republicans, except Hawley.

**JUDICIARY.** Supreme Court: Chief Justice, George H. Stewart, Rep.; Associate Justices, James F. Ailshie, Rep.; Isaac N. Sullivan, Rep.; Clerk, I. W. Hart.

**STATE LEGISLATURE, 1911.** Senate, Republicans, 14; House, 34; joint ballot, 48. Democrat-Fusion, Senate, 9; House, 25; joint ballot, 34. Republican majority, Senate, 5; House, 9; joint ballot, 14.

**IDEALISM.** See PHILOSOPHY.

**IDO.** See LANGUAGE, INTERNATIONAL.

**ILLINOIS.** One of the East North Central Division of the United States. It has an area of 58,339 square miles. Its capital is Springfield.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 5,638,591, as compared with 4,821,650 in 1900 and 3,826,352 in 1890. The gain in the decade from 1900 to 1910 was 16.9 per cent. The State ranks third in point of population, the same relative rank which it held in 1900. For population of the larger cities and towns, see UNITED STATES CENSUS.

**MINERAL PRODUCTION.** The most notable feature of the mineral history of the State in recent years has been the great increase in the production of petroleum. The total output from the field in 1909 was 30,898,339 barrels. This was a decline from the production of 1908, which was 33,686,238 barrels. In 1909 there were 3151 wells completed, of which 2593 were productive. The production of 1910, according to estimates of the United States Geological Survey, amounted to about 32,000,000 barrels. New developments were badly hindered by the severe drought in the fall. The State ranks third in the production of petroleum, being surpassed by California and Oklahoma. The coal production in 1909 was 50,893,251 short tons, having a spot value of \$53,510,211, as compared with 47,659,690 short tons, valued at \$49,978,247 in 1908. The effects of the business depression in 1908 were felt less seriously in Illinois than in some other States, and coal production was fairly well maintained, so that in 1909 the recovery was not marked by so large an increase in output as was shown in Pennsylvania and West Virginia. In 1909, 40 men were killed in explosions in the coal mines of the State, 24 of these being killed in the explosion at Zeigler on January 10. From all causes 213 men were killed in the coal mines during the year. The State is important in the manufacture of coke and also in the production of cement. It ranks fourth in extent and value of its clay products.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909-10 are shown in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910....	10,809,000	414,812,000	\$157,629,000
1909....	10,300,000	369,770,000	192,280,000
Win. Wheat 1910	2,100,000	31,500,000	27,720,000
1909....	1,810,000	31,494,000	32,754,000
Oats, 1910....	4,500,000	171,000,000	51,300,000
1909....	4,346,000	159,064,000	60,444,000
Barley, 1910...	30,000	906,000	507,000
1909....	31,000	888,000	451,000
Potatoes, 1910.	169,000	12,675,000	7,478,000
1909....	164,000	14,924,000	9,104,000
Hay, 1910....	2,795,000	3,717,000 <sup>a</sup>	44,604,000
1909....	2,852,000	4,135,000	40,936,000
Tobacco, 1910.	1,600	1,264,000 <sup>b</sup>	120,080
1909....	1,500	1,125,000	123,750
Rye, 1910....	70,000	1,218,000	865,000
1909....	71,000	1,264,000	935,000

<sup>a</sup> Tons. <sup>b</sup> Pounds.

**EDUCATION.** The total enrollment for the year 1910 in the schools of the State was as follows: Boys in graded schools, 360,122; girls in graded schools, 355,651; boys in ungraded schools, 148,843; girls in ungraded schools, 138,071; total, 1,002,687. There are in the State 56 districts which have no schools. Pupils in such cases are transferred to adjoining districts. The number of high schools in the fiscal year was 505; the number of graded schools, including high schools, was 2484; the number of ungraded schools was 10,615; total, 13,099. The average monthly salary paid to men teachers was \$9.73, and to women teachers, \$65.37. The total

expenditures for the year ending June 30, 1910, were \$35,259,197. The value of the school buildings and grounds was \$86,574,206 and the amount of the bonded school debt was \$6,697,541.

**FINANCE.** The receipts for the biennial period from October 1, 1908, to September 30, 1910, amounted to \$21,614,919. The balance in the treasury on October 1, 1908, was \$3,859,263, making the amount of funds in the State treasury on September 30, 1910, \$25,471,182. The total disbursements during the same period amounted to \$21,046,572, leaving a balance on October 1, 1910, of \$4,424,610. The chief receipts were from revenue funds, from the school funds, from the local bond fund and from the State game and protection fund. The bonded debt of the State outstanding on October 1, 1910, was \$17,500.

**CHARITIES AND CORRECTIONS.** The charitable institutions of the State included the Northern Hospital for the Insane at Elgin, the Eastern Hospital for the Insane at Kankakee, the Central Hospital for the Insane at Jacksonville, the Southern Hospital for the Insane at Anna, the Western Hospital for the Insane at Peoria, the Asylum for Insane Criminals at Chester, School for the Deaf at Jacksonville, School for the Blind at Jacksonville, Industrial Home for the Blind in Chicago, Soldiers' and Sailors' Home at Quincy, Soldiers' Orphans' Home at Normal, Soldiers' Widows' Home at Wilmington, Charitable Eye and Ear Infirmary at Chicago, State Training School for Girls at Geneva, and St. Charles School for Boys at St. Charles. For four years beginning with 1905, a body known as the Board of State Commissioners of Public Charities carried on investigations into the administration of charities in the State, and recommended legislation intended to improve these conditions. New laws were passed in the several legislatures as a result of the investigations of this commission. On January 1, 1910, a new administration law went into effect.

#### POLITICS AND GOVERNMENT

The State legislature met in special session beginning December 14, 1909, and ending March 2, 1910. The most important measures enacted will be found in the section *Legislation*, below.

**CONVENTIONS AND ELECTIONS.** The November elections in Illinois in 1910 were for minor State officers and for members of Congress. There was no election for governor. In March, 1910, a new primary law was enacted which was sweeping in its provisions. The first trial of this law was on September 15, 1910. The most important nominations made were for Congressmen and members of the legislature. There was a strong effort to defeat those members of the legislature who had been implicated in the alleged bribery transactions relating to the election of Senator Lorimer (see below). While some of these men were defeated, others received renominations. Among these were Speaker Shurtleff and Lee O'Neil Browne, the latter of whom, it was charged, was the chief agent in the bribes. Speaker Cannon was renominated for Congress in his own district by a large majority, and James R. Mann and Congressman Foss were renominated, the latter by a very small majority. Henry S. Boutell, one of the most conspicuous members of the House of Representatives, and a pronounced conservative, was defeated for renomination by an insurgent.

The Republican State Convention was held on

September 23. It endorsed the candidates nominated at the primaries. The platform commended the administration of President Taft and especially praised him for bringing to justice those implicated in the sugar frauds against the government. The Payne-Aldrich bill was mildly criticised and the tariff commission plan was advocated. The conservation and development of the national resources of the State and nation were urged. A prompt amendment to the age service pensions law for soldiers and sailors was recommended. The platform favored a direct primary law and such amendment to the existing law as experience might show to be necessary. An employers' liability act was advocated, together with a Workmen's Compensation Act.

The Democratic State Convention was held on September 23. The platform denounced the Republican party for its failure to revise the tariff downward and declared for a tariff for revenue only. A plank was adopted favoring conservation of national resources. The platform favored an income tax law. Legislation "conducive to the prosperity, happiness and safety of the laboring man" was urged, including adequate and just workmen's compensation acts, and safety appliance legislation acts. The highest State official voted for in the elections of November was State Treasurer. The Republican candidate, E. S. Mitchell, received 436,484 votes, as compared with 376,046 cast for the Democratic candidate, H. K. Hartley. In addition to State Treasurer, a Superintendent of Public Instruction and trustees of the University of Illinois were elected. Representatives to Congress who were candidates for re-election were for the most part elected.

**THE LORIMER CHARGES.** The most sensational episode in the political history of the State both from a local and national standpoint, was the charge of bribery in connection with the election of Senator Lorimer. These charges were first published in April as an alleged confession made by Charles A. White, a Democratic member of the House. Senator Lorimer, a Republican, was elected by the votes of 55 Republicans and 53 Democrats. In his confession White charged that he was paid \$1000 by Lee O'Neil Browne, the Democratic leader in the House, to vote for Lorimer, and also that at the end of the session in July he received \$900 from Robert E. Wilson of Chicago as a share of the general corruption fund distributed at the time of adjournment. The charges were at once taken up by a special grand jury, and on May 5, Representative Beckemeyer confessed that he had also received \$1000 and \$900. On May 6 the jury indicted Browne for bribery, Wilson for perjury and Representative Michael S. Link for perjury. The two last named had denied to the jury that they were in St. Louis when, as White had sworn, the fund was distributed there. Following his indictment Link confessed that he also had received \$1000 and \$900.

Late in May four additional legislators were indicted and several new confessions were made to the grand jury. These were the result of an inquiry concerning the award of the contract for supplying furniture to be used for the legislature. The lowest bidder was unsuccessful and it was suspected that bribery had determined the choice of his winning competitor. Senator D. W. Holstlaw, a Democrat, who had been a member of the committee that had awarded the

contract, was indicted on May 27 for perjury because of his testimony before the grand jury. On the following day he confessed not only that he was to receive \$1500 for his action in relation to the furniture contract, but also that Senator Broderick of Chicago had given him \$2500 to vote for Lorimer and that he had received \$700 at the end of the session as his share of the corruption fund. Broderick was immediately indicted, and with him Senator S. C. Pemberton, Republican, and Representative Joseph S. Clark, Democrat, who were accused on account of their connection with the furniture contract. The agent of the successful bidder, a Chicago manufacturing corporation, confessed to the jury, and as a result of his confession immunity was granted to Senator Holstlaw.

Lee O'Neil Browne was placed on trial in Chicago June 7. His counsel made the unique defense that the purchase of a legislator's vote for a Senatorial candidate was not a crime against the State of Illinois, because in so voting a legislator acted as an officer of the United States. He insisted that if the sale of his vote were a criminal offense, it could only be considered by a Federal court.

In the meantime, on May 28, Senator Lorimer in Washington defended himself in a long speech in which he denounced all the confessions made and all the published accounts as lies and forgeries. A large part of his speech was an attack on the *Chicago Tribune*, which printed the first confession and which, he asserted, sought in this way to destroy a new bank which he was organizing. He asserted that not a dollar had been paid to any man for a vote in his favor. He charged also that Governor Deneen, former Senator Hopkins and Mayor Busse of Chicago had formed a combination to conspire against him. He asked for an investigation by the Committee on Elections. In accordance with Senator Lorimer's request a sub-committee of senators was appointed to investigate these charges, and these investigations were carried on during the fall and early winter of 1910. On December 12, a majority of the committee made a report to the Senate in which Senator Lorimer was exonerated from any complicity in bribery. In this report the majority members declared that the charges were made by persons who were unworthy of belief, and that in any event Senator Lorimer received enough untainted votes to ensure his election. There were two members of the committee who dissented from the views of the majority. These were Senator Beveridge of Indiana and Senator Frazier of Tennessee. No action had been taken on the report before the holiday recess began, but there were many indications that the majority report would not be accepted by the Senate without great opposition.

The trial of Browne resulted in a disagreement of the jury June 29, after it had been out for 115 hours. Eight of the jurors were for conviction and four were for acquittal. The State's attorney declared after the trial that it had been a flagrant case of jury fixing and he made the charge that the jury had been "packed" from the start. In July John E. Malby was indicted for attempting to bribe Oscar T. Morford, one of the jurors at the trial of Browne. Morford voted for conviction and did not know of the attempt to bribe him. Malby, it was alleged, sought to reach Morford by means of his wife and his father.

Browne was placed on trial a second time, in August, and September 9 was acquitted.

In connection with the investigation of the alleged Lorimer bribery, important discoveries were made relating to corruption that affected legislation. A charge was made that the bill requiring fish dealers to pay license fees was killed by a contribution of \$3500 to the corruption fund. A wealthy fish dealer testified that he had contributed money at every session for twenty years. Governor Deneen declared that it was manifest that a very extensive organization of corrupt members would have been required to carry out such a conspiracy against public interests as had been revealed. He urged all good citizens to assist the authorities engaged in the inquiry. The trials of Senator Pemberton and Representative Clark for alleged taking of bribes in connection with the contract for furniture in the Capitol resulted in a disagreement of the jury, eight standing for conviction and four for acquittal.

On November 2 an indictment was returned by the grand jury against Charles E. Erbstain, counsel for Lee O'Neil Browne, on the charge that he had corrupted the jury. The trial in December resulted in a disagreement, the jury standing six for conviction and six for acquittal. Preparations for a new trial were begun immediately by the State's attorney.

**OTHER EVENTS.** On January 27, eleven persons, city officials and contractors of Chicago, were indicted by the grand jury for alleged conspiracy to defraud the city of \$254,000 in the construction of Section N of the Lawrence Avenue sewer. Four more indictments charging conspiracy to defraud the city, in the same matter, were voted February 4. Among those indicted were John Ericson, city engineer, Paul Kadieske, formerly assistant commissioner of public works, and M. H. McGovern, contractor. Ericson and Kadieske were acquitted July 12, and the acquittal of all the others accused followed July 15.

For an account of the indictment of officials of the alleged Beef Trust in Chicago see the article TRUSTS.

**LEGISLATION.** Among the important measures passed at the legislative session of 1910 are the following: The Federal income tax amendment was passed. A commission was appointed to investigate the subject of an employers' liability law, and a law for workmen's compensation. As a result of the Cherry Mine disaster in 1909 the legislature established in the coal fields three rescue stations for rendering relief in cases of serious fires, explosions and accidents in mines. A commission of seven members is to procure the equipment for these stations and appoint a manager, who is to appoint a superintendent and assistant at each station. Every coal mine is to be provided with water for fighting underground fires, together with hose, sprinklers, mine telephones, electric gongs and fire drills. Violations of law are to be discovered and prevented by a corps of mine inspectors. The legislature also appropriated \$100,000 for the relief of the Cherry Mine victims. As the Supreme Court of the State had declared three successive primary acts unconstitutional, the legislature of 1910 was obliged to pass a new law. Two acts were passed relating to primaries. One of these deals with the selection of assemblymen and local committeemen, the other is applicable to other offices. The legislature was led to this course by

the constitutional provision for the election of assemblymen by a minority vote. By this special act each voter at the primaries has three votes which he may cumulate on one candidate or divide between two or three. For additional details in regard to this act, see **ELECTORAL REFORM**. The legislature passed important measures relating to the government of cities. Among these was an act authorizing any city or village except Chicago to establish a commission form of government. A petition of ten per cent. of the voters secures the submission of the question to any city. Rejection of the proposition settles the matter for two years. Under the plan the city government is headed by a mayor and four commissioners, elected on a general ticket without party designation for a term of four years, subsequent to a primary election at which ten candidates for the five places are selected. Vacancies on the board are filled by the survivors for the unexpired term. Each member of the Council heads a department, and the Council selects and removes the minor officials not covered by the civil service acts. The statute requires the five officials, in cities of over 20,000 population, to devote at least six hours a day to their office. The board meets weekly. All appropriations and grants of street franchises are to remain on file a week before adoption, and the latter must be approved by a vote of the citizens. The act has a recall provision, but this requires as a preliminary a petition signed by 75 per cent. of the total mayoralty vote in the last election. On petition of a certain percentage of the voters, ordinances may be submitted to the Council, or within 30 days after their passage by the Council, be referred to the people. On petition of 25 per cent. of the voters the question of abandoning the commission government must be submitted to the people.

**STATE OFFICERS.** Governor, Charles S. Deneen; Lieutenant-Governor, John G. Oglesby; Secretary of State, James A. Rose; Treasurer, Edward E. Mitchell; Auditor, J. S. McCullough; Attorney-General, W. H. Stead; Adjutant-General, Frank S. Dickson; Superintendent of Public Instruction, Francis G. Blair—all Republicans.

**JUDICIARY.** Supreme Court: Chief Justice, Alonzo K. Vickers, Rep.; Associate Justices, Wm. M. Farmer, Dem.; George A. Cooke, Dem.; John P. Hand, Rep.; Frank D. Dunn, Rep.; Orrin N. Carter, Rep.; James H. Cartwright, Rep.; Clerk of the Court, J. McCan Davis, Rep.

**STATE LEGISLATURE.** Senate, Republicans, 34; Democrats, 17; Independents and Prohibitionists, 0. House, Republicans, 82; Democrats, 68; Independents and Prohibitionists, 3. Joint ballot, Republicans, 116; Democrats, 85; Independents and Prohibitionists, 3. Republican majority, Senate, 17; House, 11; joint ballot, 28.

**ILLINOIS, UNIVERSITY OF.** An institution of higher learning at Urbana-Champaign, founded in 1867. The total number of students enrolled in all departments of the University in 1909-10 was 4784, of whom 3861 were men and 923 were women. The departments include the Graduate School, College of Literature and Arts, College of Science, College of Engineering, College of Agriculture, Library School, Music School, Summer Session, College of Law, College of Medicine, College of Dentistry and School of Pharmacy. The faculty numbered 538, of whom 363 were in the colleges and schools in

Urbana and 175 in the Colleges of Medicine, Dentistry and Pharmacy in Chicago. Among the important appointments for the year 1910-11 are the following: William Thomas Bawden, Assistant Dean of the College of Engineering; Dr. Arnold Emch of Switzerland, assistant professor of mathematics; Dr. J. B. Shaw, assistant professor of mathematics; David Varon, assistant professor of architectural design; Edward Sampson Thurston, professor of law, John Norton Pomeroy, assistant professor of law. There were no important benefactions during the year. The endowment of the University in 1909-10 amounted to \$647,131 and the total receipts for the year to \$1,639,792, the larger portion of this coming from the appropriations of the State legislature and the remainder from interest on the endowment, from the Federal government, from fees from students, and from receipts from the sale of agricultural products. The President is E. J. James, Ph.D., LL.D.

**ILLINOIS CENTRAL RAILROAD CASE.** See RAILWAYS.

**ILLITERATE ALIENS.** See IMMIGRATION AND EMIGRATION.

**IMMANENT PHILOSOPHY.** See PHILOSOPHY.

**IMMIGRANT BANKS.** See IMMIGRATION AND EMIGRATION.

**IMMIGRATION AND EMIGRATION.** The upward tendency in immigration foreshadowed in 1909 continued in 1910. The total immigration for the fiscal year was 1,041,570, or 289,784 more than the total for the fiscal year 1909, and 258,700 more than the total for the fiscal year 1908, and only 243,779 less than the total for the fiscal year 1907, the banner year in immigration. This increase is accounted for by the greater demand for labor, and it is due also in large measure to the activities of the transportation companies. In addition to the number of immigrants mentioned above there were 156,467 so-called non-immigrants, a name applied to aliens residing abroad who are making a temporary trip to the United States. During the fiscal year there were 202,436 emigrants and 177,982 non-emigrants. The latter name is applied to all alien residents of the United States making a temporary trip abroad. Thus the total number of emigrants was 380,418. In 1909 there were 225,802 emigrants and 174,590 non-emigrants. Thus it will be seen that while the total of all aliens arriving in 1910 exceeds such arrivals in the previous year by 253,802, the total number of aliens departing in 1910 was less by 19,974 than in 1909, indicating a larger net gain than might be supposed from a hasty examination of the figures. Of the immigrants admitted in 1910 the largest number from any individual country was from Austria-Hungary, these immigrants numbering 258,737. Next in numerical order was Italy, with 215,537. From the Russian Empire came 186,792. The immigration from the United Kingdom was 98,796 and the total immigration from Europe was 926,291. From Asia came 23,533 immigrants, of whom 15,212 were from Turkey in Asia, 2720 from Japan, and 1968 from China. From British North America came 56,555; from Mexico, 18,691, and from the West Indies, 11,244. The immigration by countries in the fiscal years 1909 and 1910 is shown in the following table:

Countries	1909	1910
Austria-Hungary .....	170,191	258,737
Belgium .....	3,602	5,402
Bulgaria, Servia and Montenegro ..	1,064	4,737
Denmark .....	4,395	6,984
France, including Co-sica .....	6,672	7,383
German Empire .....	25,540	31,283
Greece .....	14,111	25,888
Italy, inc. Sicily and Sardinia .....	183,218	215,537
Netherlands .....	4,698	7,534
Norway .....	13,627	17,538
Portugal, inc. Cape Verde Islands and Azores .....	4,956	8,229
Rumania .....	1,590	2,145
Russian Empire, and Finland .....	120,460	186,792
Spain, inc. Canary and Balearic Islands .....	2,616	3,472
Sweden .....	14,474	23,745
Switzerland .....	2,694	3,533
Turkey in Europe .....	9,015	18,405
United Kingdom .....	71,823	98,796
Other Europe .....	46	151
<b>Total Europe .....</b>	<b>654,875</b>	<b>926,291</b>
China .....	1,943	1,968
Japan .....	3,111	2,720
India .....	208	1,696
Turkey in Asia .....	7,506	15,212
Other Asia .....	141	1,937
<b>Total Asia .....</b>	<b>12,904</b>	<b>23,533</b>
Africa .....	858	1,072
Australia, Tasmania and New Zeal. ..	839	998
Pacific Islands, not specified .....	53	99
British North America .....	51,941	56,555
Central America .....	930	893
Mexico .....	16,251	18,691
South America .....	1,908	2,151
West Indies .....	11,180	11,244
Other countries .....	49	43
<b>Grand Total .....</b>	<b>751,786</b>	<b>1,041,570</b>

**OCCUPATION OF IMMIGRANTS.** Of the total number of such immigrants, 10,324 were ranked as professional, which includes all classes indicated by that term; 138,570 were classed as skilled laborers; and 632,664 were classed as miscellaneous, which includes unskilled labor. The part classed as having no occupation, which includes women and children, was 260,002.

**FINANCIAL CONDITION, LITERACY, SEX AND AGE OF IMMIGRANTS.** The total amount of money shown by immigrants admitted in 1910 was \$28,197,745. Those possessing \$50 or over numbered 111,071; those possessing less than \$50 numbered 693,595. Of the total number admitted, 188,439 men and 65,130 women could neither read nor write; 2583 men and 1988 women could read, but could not write. Of the admitted males, 52,751 were 45 years old and over; 868,310 were from 14 to 44 years; and 120,509 under 14 years. The division of sex was 736,038 males and 305,532 females.

**SOURCES OF IMMIGRATION.** As will be seen from the table above southern and southeastern Europe continue to furnish a very large percentage of the immigration to the United States. From Austria-Hungary came 25 per cent.; from Italy over 20 per cent., and from Turkey and Greece each 2½ per cent. It has been a matter of grave concern to those interested in immigration in recent years that so many of the aliens entering the United States belong to races differing radically from the Teutonic and Celtic stocks, and the overstraining of the ability to assimilate these is a general menace. The Commissioner of Immigration sees a serious problem in this condition. He questions whether we can continue to attempt to absorb many of the poorer elements of the Iberic and Slavic races. The best elements in these races, he points out, are not coming in any numbers.

Immigration from most regions is largely in-

duced by promoters and agents of steamship lines, and the prospects of immigrants when they arrive are precarious as a result of ignorance and lack of resources. The Bureau of Immigration has endeavored to ameliorate these conditions with some success. A considerable number of aliens were rejected during the year as contract laborers and a number of others as likely to become public charges. Of these a considerable proportion belonged to the class of unlawfully induced immigration.

**PHYSICAL, MENTAL AND MORAL CONDITION OF ALIENS.** During the fiscal year 3128 aliens were rejected on account of physical defects, 379 on account of mental defects and 1215 on account of moral defects. In addition 312 were rejected because certified for minor physical or mental defects sufficiently grave to affect ability to earn a living. Thus a total of 5034 were rejected for all these causes. There were, in addition, expelled from the country on warrant of deportation 215 because of physical defects, 709 because of mental defects and 554 because of moral defects, a total of 1578. In all, therefore, it was found necessary to return to the country of origin 6612 aliens physically, mentally or morally below the standard set by law. During the last few years special efforts have been made by the Bureau of Immigration toward excluding and expelling aliens of criminal and immoral classes. A total of 1580 of these classes were removed to the countries of origin in 1910. For a discussion of matters connected with the white slave traffic and its suppression, see article PROSTITUTION.

**JAPANESE IMMIGRATION.** The addition of the "Japanese Proviso" to Section I of the Act of 1907, and President Roosevelt's proclamation regarding Japanese and Korean laborers skilled and unskilled, of March 14, 1907, have with the coöperation of the Japanese government satisfactorily accomplished the exclusion of Japanese laborers as defined in the regulations putting the arrangements into effect. The law and the proclamation were supplemented by a general understanding with Japan, contemplating that the Japanese government should issue passports to Continental United States to such of its subjects only as are non-laborers who, in coming to the Continent, seek to resume a formerly acquired domicile, or for other specific reasons. With respect to Hawaii, the Japanese government stated of its own volition that the issuing of passports to members of the laboring classes proceeding to that Territory would be limited to "former residents," and "parents, wives or children of residents." During 1910 there was a slight increase in the number of Japanese admitted both to the Continent and to the Territory of Hawaii. The total number of Japanese admitted to Continental United States in 1910 was 2598. Of these 1893 were non-laborers and 705 were laborers. The total number admitted into Hawaii was 1527, of whom the greater number were laborers. The departures from Hawaii numbered 2355. These figures are significant in connection with the fear that the western coast of the country may be overrun by Japanese laborers.

**IMMIGRATION COMMISSION.** An Immigration Commission, consisting of three Senators, three Representatives and three others, created in 1907, finished its labors on December 5, 1909. Although its most interesting reports from a

popular standpoint related to restriction of immigration, it made in its published reports many important recommendations by which immigration may be restricted. The Commission was of the unanimous opinion that action should be taken at once for an amendment to the immigration laws with a particular view to keeping out undesirable aliens. The conclusions of the Commission in regard to the white slave traffic will be found under PROSTITUTION.

The Commission carried on investigations in Europe and in the United States. The main subjects which were considered in the European inquiry were: Causes of emigration, natural and artificial; economic conditions in Europe and the effect on emigration to the United States; steamship companies and their agents as factors in promoting emigration; classes and character of European emigrants; emigration of criminals; attitude of European governments toward emigration; laws of the various countries respecting emigration and emigrants; effect of the United States immigration law in preventing the embarkation of undesirable aliens; medical examination of intending emigrants at ports of embarkation and elsewhere, and practicability of having such examinations by United States medical officers; United States Consular officers as a factor in regulating emigration, and international regulation of emigration and immigration.

The investigations in the United States covered a wide field and included inquiries into the congestion of immigrants in large cities; immigrants as industrial workers in the leading industries; effect of recent immigration on wages and other conditions in various trades; the extent to which recent immigrants and their children are becoming assimilated and Americanized; the physical assimilation of immigrants; alien criminality; immigrant homes, aid societies and employment agencies, and an investigation of conditions under which immigrants are carried at sea. The Commission also made an investigation into the treatment and conditions of work of immigrants on the cotton plantations, turpentine farms, lumber camps and railway camps in southern States.

The most important recommendations made as a result of these investigations were the following:

To protect the United States more effectively against the criminal and certain other debarred classes. Aliens convicted of serious crimes within a period of five years after admission should be deported. To aid in bringing about this condition the President should appoint commissioners to make arrangements for such countries as have adequate police records to supply emigrants with copies of such records, and that thereafter immigrants from such countries should be admitted to the United States only upon the production of proper certificates showing the absence of conviction for excludable crimes. A further provision is recommended that any alien who becomes a public charge within three years after arrival in the United States should be subject to deportation at the discretion of the Secretary of Commerce and Labor.

Sufficient appropriations should be regularly made to enforce vigorously the provisions of the laws previously recommended by the Commission and enacted by Congress regarding the importation of women for immoral purposes.

It is further recommended that the government place officials, both men and women, on vessels carrying third-class or steerage passengers for the enforcement of laws relating to the carrying of immigrants and the protection of the immigrant.

The national government and the separate States should enact laws to protect the immigrant against exploitation. Efforts should be made to discourage sending savings abroad, to encourage permanent residence and naturalization and secure better distribution of alien immigrants throughout the country.

The Commission recommends that the general policy of excluding Chinese laborers, adopted by Congress in 1882, should be continued, and that the question of Japanese and Korean immigration should be permitted to stand without further legislation so long as the present method of restriction proves to be effective. An understanding should be reached with the British government whereby East Indian laborers would be effectively prevented from coming to the United States.

As the investigations of the Commission showed an oversupply of unskilled labor in basic industries, it recommends legislation which will at the present time restrict the admission of such unskilled labor. This should include exclusion of those unable to read and write in some language, the limitation of the number of each race arriving each year to a certain percentage of the average of that race arriving during a given period of years. Unskilled laborers unaccompanied by wives or families should be excluded. The number of immigrants arriving at any port at stated periods should be limited. The amount of money required to be in the possession of immigrants at the port of arrival should be materially increased. The head tax should also be materially increased and this should be levied so as to make a marked discrimination in favor of men with families.

The Commission, as a whole, recommends restriction as demanded by economic, moral and social considerations.

**LEGISLATION PROPOSED.** The 61st Congress in its first session did not pass many important measures relating to immigration, although several bills were introduced. Two measures, however, were passed, each containing important and far-reaching amendments to the provisions which contemplate the rejection and expulsion of aliens of immoral classes and the control of the white slave traffic. The Commissioner of Immigration recommends in his annual report the revision of the Chinese exclusion laws. He makes also recommendations for the further restriction of general immigration. He points out that the classification under which most of the aliens are rejected under the existing law, that is "persons likely to become public charges," is by no means broad enough to reach all undesirables. In addition to this he maintains that it is quite important that there should be excluded those who, if admitted, will be barely able to support themselves, and whose presence in any community cannot help but reduce the standards of living, work and wages, and who are therefore an economic menace. He suggests the phrase "persons economically unfit" as sufficiently inclusive for persons of this class. The Commissioner recommends that all male aliens between the ages of 16 and 50 shall be required to stand a physical test equal to

that observed with respect to recruits for the army and navy. To make any plan for the control of immigration effective, he says, complete means must be provided for compelling transportation companies to observe both the spirit and the letter of the law. This it is within the power of Congress to do, and he suggests that it be done to the fullest possible extent. Immigration is also discussed in the separate articles on countries.

**IMMIGRATION, CANADIAN.** See CANADA.  
**IMMIGRATION COMMISSION.** See IMMIGRATION AND EMIGRATION.

**IMPERIAL CABLE.** See CANADA.

**IMPORTS.** See UNITED STATES and other countries under *Commerce*.

**INCE, WILLIAM.** An English theologian and educator, died November 13, 1910. He was born in 1825 and was educated at Kings College, London. He was admitted in 1842 to Lincoln College and received his degree there in 1846. In the following year he was elected fellow at Exeter College and in 1850 he was appointed tutor, in which position he took high rank for his lectures, especially those on Aristotle's Ethics. In 1857 he also became sub-Rector, which office he held for twenty-one years. He was appointed canon of Christ Church in 1878, also regius professor of divinity. From 1871 to 1889 he was chaplain to the Bishop of Oxford. Among his published writings are: *Some Aspects of Christian Truth* (1862); *Religion in the University of Oxford* (1874), and *Letter on Declaration of E. O. U.* (1900).

**INCINERATORS.** See GARBAGE AND REFUSE DISPOSAL.

**INCOME TAX AMENDMENT.** See TAXATION.

**INCREASE OF POPULATION.** See UNITED STATES CENSUS.

**INDEBTEDNESS.** See FINANCIAL REVIEW and paragraphs on *Finance* in articles on countries and States of the United States.

**INDEPENDENT ARTISTS.** See PAINTING.

**INDETERMINATE SENTENCE.** See PENOLOGY.

**INDEX NUMBERS.** See PRICES.

**INDIA, BRITISH.** That part of East India governed by the King of Great Britain (Emperor of India) through the governor-general of India or the latter's subordinates. India, as defined by the British Parliament, includes British India and the Native States under the suzerainty of the British government. Popularly, the term India is still more inclusive, embracing certain territories which as yet are only under British influence. Capital of British India, Calcutta.

**AREA AND POPULATION.** Area of British territory, 1,097,901 square miles, with a population, according to the census of 1901, of 232,072,832 (including Burma, with 236,738 square miles and 10,490,824 inhabitants); area of the Native States and agencies, 675,267 square miles, with 62,288,224 inhabitants; total area of British India and of the Native States, 1,773,168 square miles, with a population in 1901 of 294,361,056. In 1891 the population of British India was returned at 221,376,957; Native States, 65,937,714; total, 287,314,671, against 253,896,330 in 1881. Distribution of population according to principal religions, in India (1901): Hindus, 207,147,026; Mohammedans, 62,458,077; Buddhists, 9,476,759; Animists, 8,-

584,148; Christians, 2,923,241; Sikhs, 2,195,339. Largest cities (1901): Calcutta, 847,796 (with suburbs, 1,106,738); Bombay, 776,006; Madras, 509,346; Hyderabad, 448,466; Lucknow, 264,049; Rangoon, 234,881; Benares, 209,331; Delhi, 208,575; Lahore, 202,964.

Coolie emigrants from India in 1907-8 numbered 15,117 and in 1908-9 11,844, while 6774 and 7918 respectively returned. Vital statistics are defective; birth and death rates in 1908, 37.78 and 38.21 respectively, against 37.66 and 37.18 in 1907.

**EDUCATION.** The census of 1901 showed that in India about one male in ten and one female in 144 could read and write. Number of scholars in educational institutions in India, March 31, 1909: public colleges, 24,892 males and 320 females; public schools, 4,631,442 and 720,981; private institutions, 543,701 and 62,774; total, 5,200,035 males and 784,075 females; grand total, 5,984,110, against 5,711,485 the year before and 4,463,735 March 31, 1900. The total number of educational institutions, March 31, 1900, was 150,584; 1908, 165,612 (40,320 private); 1909, 168,228 (39,330). Expenditure on public education (exclusive of that in British Baluchistan): in fiscal year 1900, £2,515,268; 1907, £3,734,207; 1908, £4,018,764; 1909, £4,397,552; of the last figures, £1,327,179 and £1,419,579 respectively were from provincial revenues.

**AGRICULTURE.** The following figures relate to British India in the year 1908-9: net area by survey, 623,134,032 acres; under forest, 82,489,268; not available for cultivation, 157,636,249; cultivable waste other than fallow, 113,065,769; fallow, 50,153,050; net area sown with crops, 218,039,793 (against 210,883,511 in 1907-8 and 180,150,454 in 1899-1900); irrigated, 42,486,724 (against 39,913,573 in 1907-8 and 31,508,404 in 1899-1900). Total area cropped in 1908-9, 246,189,004 acres, including 28,149,211 acres cropped more than once. The areas under principal crops in 1908-9 were: food grains and pulse, 196,837,120 acres (186,369,792 in 1907-8), including 72,800,536 rice, 21,198,764 wheat, 8,602,625 barley, 24,780,143 jawar (great millet), 16,007,989 bajra (spiked millet), and 11,264,421 gram (pulse); oil-seeds, 14,105,598 acres (12,485,973 in 1907-8), including 3,887,122 rape and mustard, 4,232,568 sesamum, 1,981,826 linseed; fibres, 16,517,145 acres (18,598,640 in 1907-8), including 12,958,974 cotton and 2,835,454 jute; sugar, 2,408,812; coffee, 97,233; tea, 520,487; indigo, 286,354; opium, 416,318 (against 538,042 in 1907-8 and 614,879 in 1906-7); tobacco, 953,712; fodder crops, 4,627,878. Statistics of acreages in the Native States are not available.

Estimated yields, including returns from some of the Native States, in 1907-8 and 1908-9 respectively: rice (cleaned), 379,211,300 and 598,909,800 cwt.; wheat, 6,106,700 and 7,590,000 tons; cotton, 4,291,000 and 4,776,000 bales (of 400 lbs.); jute, 9,817,800 and 6,310,800 bales; linseed, 163,200 and 288,800 tons; rape and mustard, 688,000 and 988,000 tons; sesamum, 285,700 and 474,600 tons; indigo, 52,300 and 37,100 cwt. (112,810 in 1901-2); cane sugar, 2,046,900 and 1,841,800 tons; tea, 248,020,397 and 247,477,324 lbs.

**MINERALS.** For the principal minerals produced in British India and the Native States, see next column. Of the coal, Bengal produced in 1909 a value of £2,337,040, Mysore £2,069,524 of

the gold, and Burma £899,343 of the petroleum.

	1900	1908	1909
Coal.....	£1,343,081	£3,356,209	£2,779,866
Gold.....	1,893,107	2,177,847	2,181,771*
Petroleum....	148,755	702,009	910,172
Manganese ore..	226,362	698,178	527,357†
Salt.....	306,266	475,888	427,907
Mica†.....	109,534	126,834	154,978
Jadestone†....	46,377	84,450	91,401
Rubies.....	97,561	47,921	64,826

\* Approximate. † Exports.

**MANUFACTURES.** The most important manufactures are cotton and jute textiles; other manufactures include paper, woollens, indigo, foundry products, beer, kerosene, silk filatures, sugar, etc. Of the 657,585,000 lbs. of cotton yarn produced in the 232 mills in operation in 1908-9, 469,194,000 lbs. were credited to the Bombay Presidency. In the following table, the figures for cotton production include the Native States and French India:

	1899-1900	1907-8	1908-9
<b>Cotton</b>			
Mills.....	190	227	232
Looms.....	98,520	66,718	74,064
Spindles.....	4,737,874	5,763,710	5,945,122
Employees.....	163,296	225,367	235,987
Yarn, 1000 lbs. ...	513,923	638,295	657,585
Tissues, 1000 lbs. ...	98,065	189,052	192,365
<b>Jute</b>			
Mills.....	34	50	52
Looms.....	14,119	27,244	29,525
Spindles.....	295,302	562,274	607,358
Employees.....	102,449	187,771	192,181

In 1908 there were 1981 factories of various kinds working, with 766,150 employees, against 1207 and 468,956 in 1900.

**COMMERCE.** The foreign trade of India has been valued as follows, in thousands of pounds sterling, for years ending March 31:

Sea-borne trade..	1900	1908	1909	1910
<b>Imports.</b>				
Private mdse. ...	47,141	86,597	80,844	78,038
Gov't stores ...	3,062	4,429	5,008	3,731
<b>Total mdse....</b>	<b>50,203</b>	<b>91,025</b>	<b>85,852</b>	<b>81,769</b>
Priv. treasure ...	13,972	21,880	15,088	24,951
Gov't treasure ...	10	6,309	75	65
<b>Total treasure..</b>	<b>13,982</b>	<b>28,190</b>	<b>15,163</b>	<b>25,016</b>
<b>Total imp. ...</b>	<b>64,185</b>	<b>119,215</b>	<b>101,015</b>	<b>106,785</b>
<b>Exports</b>				
Private mdse.: Domestic prod. ...	70,456	115,652	99,883	122,891
Foreign prod. ...	2,195	2,512	2,114	2,259
<b>Total.....</b>	<b>72,651</b>	<b>118,164</b>	<b>101,996</b>	<b>125,150</b>
Gov't stores ...	71	85	77	55
<b>Total mdse....</b>	<b>72,222</b>	<b>118,249</b>	<b>102,073</b>	<b>125,205</b>
Priv. treasure ...	5,300	3,631	3,971	4,262
Gov't treasure ...	4	2	242	4
<b>Total treasure..</b>	<b>5,304</b>	<b>3,632</b>	<b>4,213</b>	<b>4,266</b>
<b>Total exps....</b>	<b>78,026</b>	<b>121,881</b>	<b>106,287</b>	<b>129,471</b>
Net exps. mdse....	22,519	27,223	16,221	43,436
Net imp. treas. ...	8,678	24,557	10,949	20,750
Excess exps. ...	13,841	2,666	5,272	22,686

#### Land Trade

<b>Imports.</b>				
Mdse. ....	3,328	4,920	4,829	.....
Treasure.....	540	740	697	.....
<b>Total imp. ...</b>	<b>3,868</b>	<b>5,670</b>	<b>5,526</b>	<b>5,638</b>
<b>Exports.</b>				
Mdse.....	2,805	4,076	4,144	.....
Treasure.....	268	566	496	.....
<b>Total exps....</b>	<b>3,073</b>	<b>4,643</b>	<b>4,640</b>	<b>4,543</b>

The figures given above for land trade are of doubtful accuracy, as registration is difficult. It should be noted that the year 1909-10 showed a recovery after the serious decline in 1908-9 as regards exports, which reached an unprecedented magnitude. The principal imports of private merchandise in the sea-borne trade were valued in 1909-10 as follows, in thousands of pounds: cotton goods and yarn, 26,247; metals, 8511; sugar, 7681; railway material, 3620; machinery, etc., 3381; mineral oil, 2097; provisions, 1932; hardware, etc., 1844; apparel, 1588; silk goods, 1511; woolen goods, 1387; liquors, 1277; spices, 858; glass, 857; dyes and tans, 739; instruments, etc., 723. Imports of government stores included: railway material, 1970; metals, 338; machinery, 185. Principal sea-borne domestic exports in 1909-10, in thousands of pounds sterling: raw cotton, 20,851; seeds, 12,484; rice, 12,163; jute manufactures, 11,398; raw jute, 10,059; hides and skins, 9080; wheat and flour, 8869; cotton yarn and cloth, 7944; tea, 7805; opium, 6209; raw wool, 1905; lac, 1848; pulse, millets, etc., 1353; fodder, etc., 863; oils, 806; coffee, 731. Principal re-exports (foreign produce): cotton yarn and cloth, 808; raw wool, 192.

The percentages shared by the leading countries in the imports of private merchandise (total, £78,038,000) and the exports of private merchandise (total, £125,150,000) were as follows in 1909-10: Great Britain, 62.5 per cent. of the imports and 26.3 per cent. of the exports; China (including Hongkong), 1.9 and 9.9; Germany, 3.6 and 9.5; United States, 3.1 and 7.6; France, 1.5 and 6.5; Belgium, 3.9 and 5.4; Japan, 2.1 and 6.7; Straits Settlements, 2.5 and 3.3; Austria-Hungary, 2.3 and 3.5; Java, 6.8 and 0.8; Ceylon, 0.6 and 3.8; Italy, 1.0 and 3.2; Mauritius, 2.1 and 0.5.

**SHIPPING.** In 1908-9 there entered in the foreign trade 4082 vessels, of 6,466,582 tons (6,347,826 steam), and cleared 3919, of 6,444,241 tons (6,333,010 steam); total number entered and cleared in 1909-10, 8042 vessels, of 14,597,091 tons. About 80 per cent. of the trade is under the British flag; about 70 per cent. is with the ports of Calcutta and Bombay.

**COMMUNICATIONS.** On December 31, 1909, there were in India 31,490 miles of railway open to traffic, against 30,576 the year before and 24,752 at the end of 1900. The mileage of 1909 was distributed as follows: State lines, 24,282 miles; assisted companies, 3353; unassisted companies, 39; Native State lines, 3742; foreign lines (French and Portuguese India), 74; total, 31,490. Most of the State and Native State lines are worked by companies under lease. For the year 1909: capital outlay for railways, £286,555,000; gross earnings, £31,376,000; working expenses, £17,590,000; net earnings, £13,786,000 (4.81 per cent., against 4.33 in 1908); employees, 515,703, of whom 498,722 were natives.

On March 31, 1909, the government telegraph had 2658 offices, with 280,955 miles of wire and 70,065 of line, against 68,940 the year before and 52,909 March 31, 1900. Post-offices in British India, March 31, 1909, 18,399, against 17,777 the year before and 12,397 in 1900.

**FINANCE.** The standard coin is the British pound sterling, worth \$4.8665, but the current coin is the rupee, valued at 32.44½ cents (15 rupees to the pound). For British India the gross revenue and the expenditure charged to

revenue, in thousands of pounds sterling, were as follows, in years ending March 31; revised estimate for fiscal year 1910:

	1900	1908	1909	1910
Rev.				
In India.....	59,211	70,285	69,160	.....
In England.....	264	719	602	.....
Total.....	59,474	71,003	69,762	74,375
Exp.				
In India.....	40,308	52,210	54,574	.....
In England.....	16,393	18,437	18,925	.....
Total.....	56,701	70,697	73,499	74,085

In addition to the above expenditure, there is a capital outlay (not charged against revenue), which in 1907-8 and 1908-9 amounted to £10,567,045 and £9,488,168 respectively for railways and £845,722 and £983,489 for irrigation.

The principal receipts in the fiscal years 1908 and 1909, with revised estimates for 1910, are shown below, in thousands of pounds:

	1908	1909	1910
Land.....	18,719	19,759	21,292
Opium.....	5,245	5,685	5,532
Salt.....	3,339	3,276	3,307
Stamps.....	4,260	4,344	4,552
Excise.....	6,227	6,390	6,536
Customs.....	5,004	4,832	4,913
Income tax.....	1,504	1,553	1,565
Provincial rates.....	526	534	546
Forest.....	1,733	1,701	1,719
Registration.....	415	431	436
Tribute from Native States ..	585	590	596
Interest.....	966	987	1,178
Post-office.....	1,824	1,826	1,905
Telegraphs.....	1,007	978	922
Civil Depts.....	1,098	1,146	1,150
Military Depts.....	1,167	1,047	1,084
Railways (net).....	12,499	9,958	12,491
Total, incl. other.....	71,003	69,762	74,375

Principal items of expenditure in thousands of pounds, with revised estimates for fiscal year 1910:

	1908	1909	1910
Direct demands*.....	8,837	8,742	8,818
Interest.....	1,821	1,967	2,094
Post-office.....	1,773	1,897	1,927
Telegraphs.....	1,084	1,028	1,029
Civil depts.:			
Gen. administration.....	1,622	1,695	1,665
Justice.....	3,449	3,687	3,652
Education.....	1,489	1,682	1,707
Medical.....	857	1,018	1,023
Total, incl. other.....	13,098	14,489	14,289
Famine relief and insurance ..	1,296	1,645	1,000
Ry. rev. account.....	10,936	11,200	11,662
Irrigation.....	2,834	2,949	3,073
Army and naval services ....	20,415	20,651	20,375
Total, incl. other.....	70,697	73,499	74,085

\* Direct demands on the revenue—this item consists of refunds and drawbacks, assignments and compensations, and collection charges, including cost of production in the salt and opium monopolies.

In the foregoing tables, the working expenses of railways are treated, not as expenditure, but as a deduction from revenue; thus, the 1909 figure for railway receipts is £9,958,041, while the gross receipts were £26,799,888. The following figures show net revenue and net expenditure, in thousands of pounds, with revised estimates for fiscal year 1910:

	1900	1908	1909	1910
Net revenue.....	39,767	47,006	45,700	49,539
Net expenditure.....	36,993	46,700	49,438	49,249
Surplus .....	2,774	306	-3,738	290

On March 31, 1909, the interest-bearing debt stood at £256,684,069; on March 31, 1910, £267,200,387; of the latter, loans raised in England (the sterling debt) amounted to £176,089,327 and loans raised in India (the rupee debt) £91,111,060 (Rs. 1,36,66,65,900). In addition, miscellaneous obligations (unconsolidated) totaled about £22,825,000. However, the assets of British India, including its railway and irrigation holdings, outstanding credits, gold reserve, etc., are reckoned as exceeding its liabilities.

**ARMY.** For 1910-11 the establishment of the British regular forces serving in India was 75,466, including 9 regiments of cavalry, 11 horse artillery batteries, 42 field batteries, 3 howitzer batteries, 8 mountain batteries, 21 garrison artillery companies, 6 heavy batteries, 52 battalions of infantry, and details of Royal engineers, Royal army medical corps, etc. The native army, amounting to about 159,446, consisted of three regiments of bodyguards, 39 regiments of cavalry and the Aden troops, the corps of guides, 12 mountain batteries, 1 frontier garrison company, 26 companies of sappers and miners, 117 infantry battalions, and 20 battalions of Gurkhas. In addition there were British volunteers, 37,040, Indian army reserves, 35,736, and Imperial service native troops, 20,736, military police and other forces making a total strength of about 340,000 troops available in India. The organization of the Indian army introduced by Lord Kitchener had been completed by 1910, and a staff college at Quetta was fully organized and the Imperial general staff scheme was made applicable to the Indian army and suitable regulations were framed. There were two great commands, a northern army under Lieut.-Gen. Sir James Willcocks, with divisions at Peshawar, Rawal Pindi, Lahore, Meerut, and Lucknow, and brigades at Kohat, Derajat, and Bannu; and the southern army under Lieut.-Gen. Sir Edmund Barrow, G. C. B., with divisions at Quetta, Mhow, Poona, Secunderabad, and in Burma, and a brigade at Aden.

**GOVERNMENT.** The government of British India is established by act of Parliament of 1858. By act of 1876 the King of Great Britain and Ireland is Emperor of India. Administration in England devolves upon the Secretary of State for India (a member of the British cabinet), assisted by a council. In November, 1910, Viscount Morley of Blackburn, the Secretary of State for India, resigned and was succeeded by the Earl of Crewe. In India, the chief executive authority is vested in the governor-general in council, sometimes styled the government of India. The governor-general is appointed by the crown, usually for five years; the Earl of Minto, who had served in this position from November, 1905, was succeeded in November, 1910, by Baron Hardinge of Penshurst. The council consists of six members, appointed by the crown, and the commander-in-chief of the army. There are ten departments of government, each headed by a secretary. A legislative council, pursuant to an act of 1909, consists of 28 official and 32 non-official members (including 25 elected), in addition to *ex-officio* members; and there are similar legisla-

tive councils in the presidencies of Madras and Bombay and in the following provinces: Bengal, Eastern Bengal and Assam, the United Provinces, the Punjab, and Burma. British India is divided into 13 local governments and administrations; in each of the presidencies, the executive authority is vested in a governor; in each of the above-named provinces, in a lieutenant-governor; and in a chief commissioner in each of the remaining divisions—the Central Provinces and Berar, Ajmer-Merwara, Coorg, British Baluchistan, the North-West Frontier Province, and the Andaman Islands.

Through British residents or agents the government of India exercises varying degrees of control over the Native States, which are governed by their princes, ministers, or councils, but are not allowed to maintain external political relations.

## HISTORY

**THE ADMINISTRATIVE REFORMS.** The annual meeting of the National Indian Congress during the last week in December, 1909, revealed a more pacific temper, owing to the execution of the reform measures upon which the government had been so long at work, and the only point on which a protest was raised was the treatment of Indians in the British colonies. The enlarged Legislative Council of Bombay met on January 4, with 46 members, 33 of whom were non-official, and the Bengal Legislative Council met at about the same time. The Imperial Legislative Council was opened on January 5, and the Viceroy, Lord Minto, in his address sketched the history of the reform measures, saying that they did not arise from suggestions of the home government, but were based entirely on views which he himself had expressed and that he was wholly responsible for them. He said that the Indian government had maintained from the first that the country was not yet ripe for the western representative system and that British supremacy ought not to be delegated. It had aimed at measures of reform and at enlargement of the councils and not at parliamentarism. At the annual meeting of the All India Moslem League the speeches were marked by a spirit of Moslem unity and loyalty to the government.

**SEDITION AND THE PRESS ACT.** In the Viceroy's speech above mentioned he had referred to the ineffectiveness of recent legislation in suppressing sedition, and declared the necessity of adopting new measures against the seditious press which was certainly responsible for the terrorism. The country was approaching a condition of anarchy; conspiracies were increasing and the press was constantly menacing a revolution. Reports of outrages in the press bore out the Viceroy's characterization. On December 21, 1909, Mr. A. M. T. Jackson, Collector of Nasik, had been murdered. It was brought out in the trial that the murder had been done under the belief that Jackson had acquitted native murderers, deceived the people and oppressed the poor. The court sentenced three of the prisoners to death, three to transportation for life and one to two years' imprisonment. The three prisoners condemned to death were executed at Thana jail on April 19. Investigations which led to the trial revealed the existence of a widespread conspiracy and 37 persons were held for trial. Another anarchist murder occurred in January when

Shams-ul-Alam, the Police Inspector of the Criminal Investigation Department, who had been charged with the investigation of the Manicktollah bomb conspiracy, was shot and killed at the High Court building by a young Bengali on January 24. The motive of the crime was the wish to remove an officer who held clues as to conspiracies, dacoities and other crimes. These and other outrages were fomented by the efforts of the native press and by the circulation of seditious literature. Numerous societies had been formed to preach violent resistance against the authorities. In the inflammable state of mind among certain classes even the reading by them of books commonly considered harmless led to acts of terrorism. For example it appeared that some of the Nasik murderers had been influenced in their course by the writings of Mazzini. The new Press act to which the Viceroy referred was passed on February 8. At the same time Lord Minto announced that the situation having changed, the prisoners sentenced fourteen months previously would be released. They had been arrested for political agitation which had since degenerated into anarchy, and they had nothing to do with the present sedition. It was thought that their release would tend to remove any feeling of injustice as to the severity of the government in the past. The principal features of the new Press law were the requirement henceforth of the deposit of Rs. 500 to Rs. 2000 by all newspapers and presses, the empowering of the authorities to open all postal matter which they suspected of containing seditious language, and the requirement that two copies of each newspaper should be placed in the hands of the government. It greatly extended the list of offenses for which newspapers might be punished, including among them an attempt to incite contempt of the ruling chief's government. It was much more comprehensive and strict than the Vernacular Press act of 1878. Upon the commission of a second offense the amount deposited by the newspaper must be forfeited. Under the new Press law the publication of a native journal, the *Swarajya*, was stopped and its editor and publisher was convicted of sedition and sentenced to ten years' transportation.

**POPULAR UNREST.** Another printer of a native paper was sentenced to six months' imprisonment in June for publication of an article in December, 1909. On June 9, members of the criminal class attacked the Fatehgarh Central jail and 7 were killed and 50 wounded. The police were also active in enforcing the Seditious Meetings act, which served its purpose well and which the government decided to renew. In the course of a speech in Parliament on the Indian budget, the Under-Secretary for India outlined the government's recent measures, and explained the necessity for its seeming harshness. The Press act in connection with the Seditious Meetings act would, in his opinion, tend to uproot the evil. He quoted the following passage from a native paper as illustration of the class with which the government had to deal: "Sacrifice white blood undiluted and pure at the call of your god on the altar of freedom. The bones of the martyrs cry out for vengeance and you will be traitors to your country if you do not adequately respond to the call. Whites, be they men, women, or children—murder them indiscriminately, and you will not commit any sin." This was signed "Editor,"

and the following postscript was added: "The editor will be extremely obliged to readers if they will translate into all languages and circulate broadcast." The new Press law did much to moderate the tone of the hitherto violent native papers.

In July and August there were several arrests in Calcutta and the police were active in Eastern Bengal in searching out authors of seditious movements. A conspiracy was discovered at Khulna and 11 Bengalis were arrested and sentenced to transportation for from three to seven years. A conspiracy trial at Dacca attracted much public attention, 42 persons having been arrested. A witness for the Crown testified that he had penetrated into a secret society and mastered their plans of organization and methods of action. In the course of the trial, Police Inspector Ghose, an important witness in the case, was shot and seriously wounded on his way home.

The Nasik conspiracy trial, which was opened at Bombay on September 15, brought out much evidence concerning the illegal activities of a secret society, including theft of jewelry for the purpose of purchasing arms and ammunition, and also preparations for bomb throwing for the removal of unpopular officials. In addition to the 37 prisoners, many of them Brahmin students, arrested early in the year, one Savarkar, also a student, was arrested in London, charged with complicity and extradited. On his way to India he escaped from the vessel in the port of Marseilles but was captured by a French policeman and restored to his pursuers. Negotiations between the British and French governments resulted in an agreement to submit the question of jurisdiction to The Hague Tribunal. He was, however, to stand trial, though sentence, if passed, was not to be carried out against him pending the decision of The Hague court. The trial ended December 24 with the discharge of 11 prisoners and the sentence of the rest to varying punishments, the most severe being that of Savarkar—transportation for life.

There were outbreaks among the frontier tribesmen early in the year. A raid by a Mullah of the Waziris was put down by the government, and there was some further trouble in May on account of the depredations of the Waziris on their neighbors. In the autumn trouble was threatened on the Afghan frontier by the Mohmands and Zakka Khels. Additional troops were stationed on the frontier for protection. The joint Anglo-Afghan Boundary Commission reached an agreement in November providing that all outlaws should be kept at least 50 miles from the frontier to prevent their raiding. Afghan outlaws living on British territory were ordered beyond the 50-mile limit.

**EMIGRATION.** The subject of emigration has been under discussion for several years past and in March, 1909, a committee was appointed to report on emigration from India and the Crown possessions. This report, which was read in June, 1910, emphatically approved the continuance of Indian emigration, and urged that it should extend only to colonies that offered a chance to the immigrant to settle there afterwards in an independent capacity. It declared that Indian emigration was of the greatest assistance in developing the resources of the British tropical colonies, and that indentured emigration was at present the only practicable form

in the case of distant colonies, if Indians were to be brought in in any considerable numbers.

The Indians of the Transvaal sent a deputation to India in 1910 to protest against their treatment by the Transvaal government. They succeeded in raising a considerable fund from their sympathizers. When they returned to South Africa the authorities refused to let some of them land and required the others to obtain official permits before going to their homes.

**END OF LORD MINTO'S ADMINISTRATION.** In June, Sir Charles Hardinge, who was later raised to the peerage under the title of Baron Hardinge of Penshurst, was appointed to succeed Lord Minto. He had been ambassador at St. Petersburg and the appointment met with general approval. Lord Minto made his final preparations for departure in October. Many public honors and farewell banquets were given to Lord Minto on the eve of his departure. In an address on October 14, he reviewed the political conditions, saying that when the government considered the situation in 1906 it found that there were two ways of dealing with the problem of Indian affairs. The first was to refuse to have anything to do with the new ideas because they were opposed to the stability of British rule. The second was to regard them as the outcome of British administration in the course of which the natives had reasonably acquired some political aspirations. After careful consideration the Indian government had come to the conclusion that the representative principle should be further extended in the administration and this had been gradually accepted by Lord Morley. He denied that the sedition and popular violence could be regarded as in any way representative of the general political conditions. The people were still loyal. In the latter part of November Lord Hardinge arrived at Bombay, where he received an imposing welcome. See also **EXPLORATION** and **PLAGUE**.

**INDIA, PORTUGUESE.** See **PORTUGUESE INDIA**.

**INDIANA.** One of the East North Central Division of the United States. It has an area of 36,584 square miles. Its capital is Indianapolis.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 2,700,876, as compared with 2,516,462 in 1900 and 2,192,404 in 1890. The gain in population in the decade 1900 to 1910 was 7.3 per cent. The State ranks ninth in point of population, whereas in 1900 it ranked eighth. The population of the larger cities and towns will be found in the tables in the article **CENSUS**.

**MINERAL PRODUCTION.** Indiana ranks ninth among the States in the production of petroleum. The total amount produced in 1909 was 2,296,086 barrels, valued at \$1,997,610, as compared with a production of 3,283,629 barrels, valued at \$3,203,883 in 1908. There were in the State at the end of 1909 305 completed wells, of which 219 were productive. The production in 1910, according to the United States Geological Survey, showed a continued decrease largely due to the development of unusual ventures in Illinois. The coal production of the State has shown an increase in recent years. The amount produced in 1909 was 14,881,699 tons, as compared with a production of 12,314,890 tons in 1908. The reports of the United States Geological Survey indicated a still further increased production in 1910, due largely to the curtailment of the output from Illinois. Indiana is one of the

most important of the States in the production of Portland cement, ranking second in the quantity produced and being surpassed only by Pennsylvania. There were manufactured in 1909 7,026,081 barrels of Portland cement, valued at \$5,331,468. This is an increase of nearly 1,000,000, in quantity, but a decrease in value, as compared with 1908. There was also produced a large quantity of natural cement, aggregating over 200,000 barrels. A considerable quantity of coke is manufactured and the stone products are of great value. Other mineral products include coal products, illuminating gas, pyrite and oil stones.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909-10 are shown in the following table:

	Acreage.	Prod. bu.	Value
Corn, 1910.....	5,120,000	201,216,000	\$30,486,000
1909.....	4,913,000	198,520,000	98,260,000
Wint. wheat, '10	2,827,000	40,981,000	35,653,000
1909.....	2,165,000	33,124,000	26,436,000
Oats, 1910.....	1,850,000	65,490,000	20,302,000
1909.....	1,820,000	55,510,000	21,649,000
Barley, 1910...	9,000	243,000	136,000
1909.....	9,000	212,000	134,000
Rye, 1910.....	55,000	869,000	591,000
1909.....	57,000	940,000	696,000
Buckwheat, 1910	5,000	88,000	62,000
1909.....	6,000	104,000	82,000
Potatoes, 1910..	92,000	7,728,000	3,864,000
1909.....	95,000	9,025,000	4,693,000
Hay, 1910.....	2,100,000	2,730,000a	32,487,000
1909.....	2,200,000	3,080,000	32,340,000
Tobacco, 1910..	27,000	23,760,000b	2,257,000
1909..	20,000	19,000,000	2,090,000

a Tons. b Pounds.

**EDUCATION.** The number of pupils of school age in the State in the year 1909-10 was 754,972. The enrollment was 531,459 and the average attendance was 420,780. The State has a compulsory education law, a teachers' minimum wage law, a plan for accrediting the work of private normal schools that meet the proper standards, and the requirement that all teachers must have normal training in addition to the four years' high school course before they are permitted to teach. The law provides also for school consolidation and the transportation of pupils.

**CHARITIES AND CORRECTIONS.** The charitable and correctional institutions of the State include the Indiana Reformatory at Jeffersonville, the Indiana State School for the Deaf at Indianapolis, the Central Hospital for the Insane at Indianapolis, the Indiana School for the Blind at Indianapolis, Indiana State Prison at Michigan City, Indiana Boys' School at Plainfield, Soldiers' and Sailors' Orphans' Home at Knightstown, the Indiana Women's Prison at Indianapolis, the School for Feeble-Minded at Fort Wayne, the Northern Hospital for the Insane at Logansport, Eastern Hospital for the Insane at Richmond, the Southern Hospital for the Insane at Evansville, the State Soldiers' Home at Lafayette, the Indiana Girls' School at Indianapolis, the Southeastern Hospital for the Insane at Madison, the Indiana Village for Epileptics at Newcastle, and a Hospital for the Treatment of Tuberculosis at Rockville. The legislature of 1909 passed many important measures relating to the administration of these institutions and to the general supervision of charitable work throughout the State. These include laws providing for public playgrounds, a tax for the maintenance of public hospitals in cities of the fourth and fifth class, an amend-

ment to the compulsory school attendance law, extending its benefits to the blind and deaf children and a law providing for the appointment of three members of the Indianapolis police force as humane officers.

#### POLITICS AND GOVERNMENT

There was no meeting of the State legislature in 1910, as the sessions are biennial and the last was held in 1909. The next session begins January 5, 1911.

**CONVENTIONS AND ELECTIONS.** The chief interest in the State elections in Indiana in 1910 was in the nomination and election of United States Senator. The term of Governor Marshall, who was elected on the Democratic ticket in 1908, does not expire until 1913. Senator Beveridge was a candidate for re-election and he had the support of the progressive or insurgent element in the State, but he was opposed by representatives of the regular party machine. The Republican State Convention was held on April 5. The greater number of the delegates had previously signified their support of Senator Beveridge and his renomination was a foregone conclusion. He appeared before the convention and made a speech in which he urged a permanent tariff commission as the only solution of the tariff problem. Senator Beveridge has been the warmest supporter in the Senate for the plan of a permanent tariff commission and his efforts were warmly endorsed by the convention. The platform adopted by the convention included the following utterances on the tariff: "We believe in a protective tariff measured by the difference between the cost of production here and abroad. Less than this is unjust to American laborers. More than this is unjust to American consumers. That difference should be ascertained with the utmost speed and the present law modified accordingly. We demand the immediate creation of a genuine, permanent, non-partisan tariff commission with ample powers to define duties fixed by the law itself." The platform also declared that the coal deposits of Alaska should be kept as the property of the United States, to be developed under lease on a royalty basis. It favored the income tax amendment, national legislation to end child slavery in factories, mines and sweat-shops, publicity for campaign funds, and the direct election of Senators. A paragraph was included highly commending President Taft and pledging to him the support of the party in any efforts to secure the enactment of genuine progressive legislation. The convention also pronounced for the re-election of Senator Beveridge.

The issue with the Democratic party, as with the Republican, was the nomination for Senator, but the situation was complicated by the announcement early in April by Thomas Taggart, leader of the Democratic organization in the State, that he was a candidate for the nomination. Strong opposition at once developed which centered in the desire to nominate John W. Kern, who was Democratic candidate for Vice-President in the campaign in which President Taft was elected. Primaries for the election of delegates to the State Convention were held during April. At the primary held in Indianapolis on April 26, Mr. Taggart secured 179 delegates out of a total of 183. In this primary not more than 50 per cent. of the Democrats voted. Much dissatisfaction was ex-

pressed with the result of the primaries held throughout the State. Little general interest was shown and for the most part the control remained in the hands of the professional politicians. So great was the dissatisfaction with the prospective nomination of Mr. Taggart that a combination was made between the friends of Governor Marshall and John W. Kern to defeat him in the State Convention held on April 28. So strong was this feeling that an attempt was made by Mr. Taggart's adherents to have the convention declare that it would not nominate a candidate for the Senate. After warm discussion a vote was taken which resulted in 888½ for nominating a Senator and 858½ against such nomination. Thus the supporters of Governor Marshall and Mr. Kern won by 30 in a convention of 1747 delegates. Ten names were placed in nomination, including Mr. Taggart and Mr. Kern. On the first ballot Taggart led with 228 votes, while Kern received 200. On the second ballot more delegates voted for Mr. Kern. At this point he appeared in the convention and declared that no one had been authorized to place him in nomination and that he was not a candidate. The convention, however, would not listen to him, and on the second ballot he received 647 votes. He again appeared upon the platform and declared that he would not accept if nominated. During the second ballot Mr. Taggart withdrew his name from the convention, transferring his votes to Mr. Kern. On the third roll call Mr. Kern received 772 votes and the other candidates withdrew. His nomination was thereupon made unanimous. The platform adopted by the convention was concerned chiefly with the tariff and liquor questions. The Payne-Aldrich tariff act was denounced as a masterpiece of injustice. The platform recognized the rights of the people of the State to settle the question as to whether intoxicating liquors should be sold in their respective communities and to that end favored the amendment and modification of the present local option law so as to make incorporated cities, townships and the territory in townships outside of such cities the units of electing. This declaration forced the liquor question into the campaign, although the Republican platform had ignored it. Nominations were also made for State officials, including Secretary of State, Auditor, Treasurer and Attorney-General.

The campaign carried on in the summer and fall of 1910 was of more than local interest, chiefly from the national standpoint as an indication of the attitude of the voters of the State toward the administration and the progressive element of the Republican party. In the latter part of the campaign Mr. Roosevelt made several speeches in the State in behalf of Senator Beveridge. Senator Beveridge himself made an energetic campaign and spoke in all parts of the State. He vigorously assailed the Payne-Aldrich tariff law and defended the attitude of the progressive Senators in opposing certain measures enacted in that law, as well as the general method of carrying it through the Senate. His efforts, however, were not sufficient to stem the current of Democratic success which swept the country. On November 8 the Democrats elected a majority of 38 in joint ballot in the legislature, thus insuring the election of a Democratic Senator. The head of the Democratic ticket received a majority of nearly

14,000 votes. As a result, the Democrats will have in the State Senate of 1911, 31 members and the Republicans 19, while in the House there will be 63 Democrats and 37 Republicans. In a number of representative and senatorial districts, Republican majorities in normal Republican counties were overcome by unusual Democratic majorities in other counties making up the districts. There were especially heavy Democratic majorities in the no-license districts. The defeat of Senator Beveridge was due largely to local conditions. The State was strongly Democratic in sentiment and the temperance question was involved in choosing a legislature. Undoubtedly many who would have voted for Senator Beveridge as Senator had interests at stake which led them to assist in electing a Democratic legislature. Republican candidates for Congress in the State were overwhelmingly defeated, with the exception of Representative Crumpacker, who saved his seat by a narrow margin. As the result of the election of a Democratic legislature, John W. Kern will receive the majority of votes in the United States Senate in the legislative session of 1911.

**STATE OFFICERS.** Governor, Thomas R. Marshall; Lieutenant-Governor, Frank J. Hall; Secretary of State, L. G. Ellingham; Treasurer, William H. Vollmer; Auditor, William H. O'Brien; Attorney-General, Thomas M. Honan; Adjutant-General, George W. McCoy; Superintendent of Education, Charles A. Greathouse—all Democrats.

**JUDICIARY.** Supreme Court—Chief Justice, Quincy A. Meyers; Justices, John V. Hadley, James H. Jordan, Leander J. Monks, Oscar H. Montgomery; Clerk of the Court, Edward V. Fitzpatrick—all Republicans.

**STATE LEGISLATURE, 1911.** Senate, Republicans, 20; House, 40; Joint Ballot, 60. Senate, Democrats, 30; House, 60; Joint Ballot, 90. Majority, Senate, Democrats, 10; House, Democrats, 20; Joint Ballot, Democrats, 30.

**INDIA RUBBER, SYNTHETIC.** See **CHEMISTRY**.

**INDIANS.** The efforts of the Indian Department, now under the supervision of Commissioner Robert G. Valentine, have been focused on the instruction of Indians in modern agricultural methods. For this end experts are employed and experimental farms are established in various districts in order to discover the best crops and improve the quality of the seed. Agricultural fairs are held on several reservations as stimuli to increased efforts on the part of the nation's wards. On the Fort Peck Reservation about half of the male adults cultivate their own farms, the area under cultivation having approximately doubled within the year. An elevator is being constructed to handle the grain harvested in the neighborhood. The Nez Percés of Idaho have developed great interest in the planting of fruit trees, and on the Yakima Reservation, in Washington, the white lessees have established model farms, which are exerting a favorable influence on their Indian neighbors. Extraordinary progress is reported from the Winnebago, who, in the course of the year, have more than doubled the area under cultivation. About 75 per cent. of the able-bodied Winnebago are engaged in farming, and the corn crops are said to be on a par with those of the average white planters. The work of the employment bureau also deserves notice. Two large railway systems have offered to provide employment for

Indian school boys with a mechanical bent, which means that hundreds of young men will have an opportunity of perfecting themselves at their chosen trades and securing fair wages in the railway shops. Work has been found for a large number of Indians on irrigation and railroad projects. The sugar-beet region near Rocky Ford, Colo., furnished employment for a great number, the total earnings there being \$19,868.80; as the district is one of the best irrigated agricultural districts in the country, the boys cannot fail to derive valuable practical knowledge on the important subject of irrigation.

Strenuous efforts have been made to reduce the two principal scourges of modern Indian life, trachoma and tuberculosis. The former is especially prevalent in the Southwest where a hospital with special physicians has been established for a thorough examination of about 20,000 Indians, 20 per cent. of whom were found tainted. Special sanatoria and camps for the treatment of tuberculosis were organized in several localities; of 117 patients admitted, 87 showed marked improvement. Increased attention is given to sanitary house-to-house inspections by the resident government physicians. At the same time preventive measures are also attempted by means of popular education in matters hygienic.

The Indian schools are being more closely connected with the public schools of the whites. Wherever feasible, an effort is made to have the children of the two races educated together, as this seems a ready way to effect the assimilation of the rising generation. The curriculum of Indian schools has been altered so as to conform as closely as possible to the course of study outlined for the white children's schools by the local or State authorities.

In general, it may be said that the government is steadfastly aiming to break up the old tribal relations and treat each Indian as an individual, and that during the past year great strides have been made in this direction, although a great deal yet remains to be done. See **ANTHROPOLOGY AND ETHNOLOGY**; and for Indian reservations see **PUBLIC LANDS**.

**INDIAN SURVEYS.** See **EXPLORATION, Asia**.

**INDIUM.** See **ATOMIC WEIGHTS**.

**INDO-CHINA, FRENCH.** See **FRENCH INDO-CHINA**.

**INDUSTRIAL ARBITRATION AND CONCILIATION.** See **ARBITRATION AND CONCILIATION**.

**INDUSTRIAL COMBINATIONS.** See **TRUSTS**.

**INDUSTRIAL DISPUTES INVESTIGATION ACT.** See **ARBITRATION AND CONCILIATION**.

**INDUSTRIAL EDUCATION.** See **EDUCATION IN THE UNITED STATES**.

**INDUSTRIAL HYGIENE.** See **OCCUPATIONAL DISEASES**.

**INDUSTRIAL INSURANCE.** See **INSURANCE**.

**INDUSTRIES.** See paragraphs on the subject in articles on countries and in States of the United States.

**INFANTILE SPINAL PARALYSIS.** (Poliomyelitis, Anterior.) **SPREAD OF THE DISEASE.** During 1909 and 1910 this disease assumed the proportions of a widely scattered epidemic, not only in the United States, but in all parts of the world. In the five years ending

1904, only 300 cases were reported, while in the five years ending 1909, 8000 cases were reported, of which five-sevenths were in the United States. In Pennsylvania alone, up to September 3, 469 cases were reported. Prior to 1907, this disease occurred only sporadically in the United States, but since then it has spread over the whole country, few States escaping. Poliomyelitis is believed to have been imported from Europe. The earliest foci of the disease were on the Atlantic Seaboard—New York and Boston, the greatest immigrant ports—and it was known that it was already spreading in Northern Europe before 1907. An early isolated outbreak occurred in Minnesota, which receives a large number of immigrants from Norway and Sweden.

**ORIGIN.** Although it has been suspected by many to be contagious, it is only within the last year that the researches of Flexner and Lewis in the United States, and Landsteiner and Levaditi, in France, proved the infectious agent to be an extremely minute organism. This organism is ultra-microscopic, and readily passes through the pores of earthenware filters. It is fairly certain that the micro-organism is taken into the blood through the mucous membrane of the nose, that it exists in the nasal secretions, and that through these the disease is disseminated. The French observers above mentioned found the virus in the salivary glands, so that the saliva may also be implicated in the spread of the infection.

**EFFECTS.** Anterior poliomyelitis generally attacks infants and young children. The disease begins, in a typical case, like many other children's diseases, suddenly, with fever, vomiting, and possibly diarrhœa; within a few hours or days a flaccid paralysis of certain groups of muscles, or of an arm or a leg, is noticed, and the true nature of the malady is then apparent. The paralysis may partially disappear, but the muscles that remain affected soon begin to atrophy, and little improvement is thereafter attained, and various deformities and contractures appear unless prevented by orthopedic apparatus. The typical lesions of anterior poliomyelitis are seen in the ganglion nerve cells in the anterior horns of the spinal cord, but adjacent nerve cells may also suffer, and even the medulla oblongata, or the brain itself, may be involved. When the latter occurs, convulsions, hemiplegia, or occasionally epilepsy, may follow; in fact, a wide variety of nervous phenomena, depending on the part of the cerebro-spinal system attacked, may result. The mortality is not high, but few cases escape without some paralysis or deformity.

**TREATMENT.** Treatment of anterior poliomyelitis has heretofore been symptomatic during the acute attack, with electricity and massage, and later orthopedic appliances for the paralyzed muscles. Internally, hexamethylenamine, a powerful but harmless antiseptic, has been used lately, on the theory that the micro-organisms existing in the cerebro-spinal fluid are inhibited from growth by the drug, which, it is known, circulates in this fluid in appreciable amounts. Isolation and quarantine are enforced in many localities, and in New York State the disease is reportable to the various Boards of Health.

**INFANT PARALYSIS.** See INFANTILE SPINAL PARALYSIS.

**INFRINGEMENT OF COPYRIGHT.** See COPYRIGHT.

**INGOT IRON.** See CHEMISTRY.

**INHERITANCE TAX.** See TAXATION.

**INITIATIVE AND REFERENDUM.** The movement for the establishment of the initiative (by which the power to initiate any desired legislation is reserved to the people), the referendum (by which the power to call for a public vote upon any proposed measure is reserved in the people), and the recall (q. v.) (which is the power to compel an official to stand for re-election) is a part of the same movement that is manifesting itself in the demand for the direct nomination of candidates. They all form part of a growing desire for a more democratic form of government—a more responsive electoral machinery.

**THE EXPERIENCE OF OREGON.** For the past ten years, Oregon has retained its leadership in the effort to realize this desire, and there has been a feeling on the part of many that the initiative and referendum have been somewhat overworked in that State. It must be conceded, however, that the results so far have not justified this fear, inasmuch as the Oregon voters have shown a remarkable discrimination in their voting up or voting down propositions submitted to them under the initiative and referendum laws. There have been efforts made to submit trivial questions, but these have not interfered with the intelligent expression of opinion on the real issues submitted. That this is so is due to the fact that the voter is supplied by the State with a small pamphlet, carefully edited, giving in concise form the principal facts about the candidates and questions to be voted upon. In most instances the issues submitted were discussed in the newspapers for a year or more and public meetings were held for the presentation of arguments *pro* and *con*. The *Pacific Outlook* is authority for the statement that one-third of the questions submitted are put up by the legislature merely for the purpose of discrediting direct legislation. Another third are the result of legislative carelessness and stupidity. Still another third are *bona fide* issues upon which public expression is needed. In the 1910 campaign among the latter was the project for a State publication to fulfil for the State of Oregon what such papers as *Denver Facts*, the *Kansas City Facts*, the *Boston Record*, and other official city publications have been doing for their respective communities. (See OREGON, paragraph *Politics and Government*.) The "Oregon Plan" has become widely noted as an interesting experiment in democracy. It is likely to be extended still further if the plans of the "People's Power League of Oregon" organized in 1910, are carried out. This is the organization of which W. S. U'ren is a leading spirit.

Under the present initiative and referendum provision of the Constitution, the legislature has the right to enact urgency or emergency laws by declaring that an emergency exists, and prohibits the filing of a referendum petition against a law enacted with the emergency clause attached. That has given machine legislators ample opportunity to commit legislative outrages by tacking the emergency clause to all sorts of laws so as to shut off the referendum. Under an amendment proposed by the League, three-fourths of all the members elected to each chamber must vote, on roll call, for an emergency section, apart from the vote on the bill. A bill thus passed does not go to the governor,

but is filed with the Secretary of State. A referendum petition may be filed against it, but the law remains in force until the people approve or reject it. The amendment provides, further, that no statute, ordinance, or resolution approved by vote of the people shall be amended or repealed by the legislature or a city council except by a three-fourths vote of all the members elected, taken by yeas and nays, which is a good provision, seeing that the representatives in two cases repealed laws enacted by the people. Whether that was done ignorantly or maliciously is not of much consequence so far as the result is concerned. The purpose of this amendment, in the words of the People's Power League, is to make the people's power fence "horse high, pig tight, and bull strong" in case a legislature may try to get through it or over it or push it down.

The effort to apply the principle of the recall to the members of legislature and of Congress will, if the amendments are adopted, be watched with keen interest. It will enable the people of Oregon, to use the words of one advocate, "to snuff out a good deal of what one of the justices of the Oregon Supreme Court piously calls 'damned insolence in office.'"

An important feature of the "Oregon Plan" is the publicity pamphlet, which was originally established in 1907. In connection with the primary election the State issues a pamphlet containing cuts and statements of the party candidates who have duly filed their petitions for nomination with the Secretary of State together with arguments filed for and against the several candidates. It is required of each candidate that he shall pay for at least one page at rates varying from \$10 to \$100, and each candidate may secure additional pages, not exceeding three, at the rate of \$100 a page. In connection with the general election the Secretary of State issues a copy of all measures referred to the people by the Legislative Assembly, and of any referendum ordered by the petition of the people and proposed by initiative petition, together with the arguments for and against the measures. It was reported that these pamphlets were quite generally studied and that the quality of the arguments was distinctly superior to that of the average newspaper discussion or campaign speeches.

GROWING POPULARITY OF THE MOVEMENT. No small part of the present popularity of the initiative, referendum, and the recall has been due to the increased application of its commission form of government to American cities. A round hundred are now so governed. (See MUNICIPAL GOVERNMENT.) The results in those cities operating under that system have so far been so uniformly beneficial that long-time opponents of the initiative and the referendum are weakening in their opposition. As a matter of fact there is nothing new in the referendum, for from the beginning of our government the people have voted on the adoption of constitutions and constitutional amendments. The modern application of the principle, however, represents an improvement in that instead of submitting an entire instrument covering all phases of government, questions are submitted one by one in a form which admits of a comparatively easy formulation of a sound judgment.

RELATION TO THE SHORT BALLOT MOVEMENT. Advocates of the short ballot (q. v.) have

been fearful lest the growth of the initiative and the referendum would militate against that movement. Experience with the short ballot and the referendum and the initiative, however, has not been sufficiently long or extended to justify one in making a dogmatic assertion one way or the other. With the concentration of legislative and administrative duties in the hands of a small number of elective officers, it would seem as if there should be adequate provision for the voters to declare themselves upon questions of policy, otherwise there would not be that separation of the policy-determining functions from the policy-executing functions which is fundamentally important.

HOW FAR INTRODUCED OR PROVIDED FOR. Of the State laws providing for the commission government of cities, Iowa, Kansas (1st and 2nd class cities), Illinois, South Dakota, South Carolina, Kentucky, and Louisiana provide for both the initiative and referendum in the cities adopting the provisions of the law; Wisconsin, North Dakota, New Mexico and Mississippi provide for the referendum; and under the Minnesota law any city adopting the commission government plan may include either or both.

The following commission-governed cities have both the referendum and the initiative: Dallas, Fort Worth, Austin, Waco, Marshall, and Amarillo, Texas; Lewiston, Idaho; Haverhill, Gloucester, and Lynn, Massachusetts; Colorado Springs and Grand Junction, Colorado; Berkeley and Oakland, California; Tacoma, Washington; Sapulpa, Ardmore, Enid, Tulsa, Bartlesville, and Muskogee, Oklahoma.

Houston, El Paso, Denison, Greenville, Palestine, and Corpus Christi, Texas; Huntington, West Virginia; Memphis, Tennessee; High Point, North Carolina; and McAlester, Oklahoma, have only the referendum.

The other commission-governed cities have neither form of check.\*

Denver adopted at the November, 1910, election amendments to its charter providing for the initiative, referendum, and recall.

South Dakota was the first State to adopt a constitutional amendment for the initiative and referendum. Next came Utah, but the Utah amendment is not self-executing and the legislature has never passed an enabling act. Oregon followed in 1902; Montana in 1906, and Oklahoma in 1907. Maine and Missouri in 1908 adopted similar amendments. South Dakota, Oregon, and Oklahoma even went so far as to apply the constitutional amendments for the initiative and referendum to municipal corporations. Nevada has adopted a referendum amendment, and Illinois has an advisory referendum and initiative. Maine extends the right to cities. In 1910 Arkansas and Colorado adopted referendum and initiative amendments. In both States the majorities were substantial, that in Colorado amounting to 60,443. Arizona has in its constitutional convention provided for complete and radical referendum, initiative, and recall provisions. North Dakota's legislature defeated a proposed initiative and referendum amendment, and members of the legislatures of California and Nebraska have in large numbers promised consideration of the question. In 1907 Iowa and South Dakota each enacted a general law under which

(\*See paper of Dr. Ernest S. Bradford on "The Present Status of Commission Government" in the Buffalo Proceedings of the National Municipal League.)

cities may, if they so choose, have charters embodying the general features of the commission plan of government. In both of those States cities may not be incorporated by special act and any city choosing to adopt the new plan of government acquires with it the initiative, referendum, and recall, all three rights being a part of the general law. In South Dakota the constitution specifically gives to the people the right of the initiative and referendum, while in Iowa no mention thereof is made in the constitution. The Supreme Court of Iowa, however, in the case of *Eckerson v. Des Moines*, 115 N. W. 177, decided on February 18, 1908, that the statute conferring the right upon cities of a certain class to adopt a commission plan of government which included the initiative, referendum, and recall was constitutional, as the State constitution did not specifically forbid the granting of these rights. In Texas, however, cities of a certain size may be incorporated by special act, and since Galveston obtained its new form of government numerous cities in the State have been given, as we have already seen, charters by special acts, some embodying the initiative, referendum, and recall, others one or two of these provisions, and some none of them or only in a modified form.

**THE MOVEMENT IN ILLINOIS.** In June, 1910, a conference was held in Peoria, Illinois, to consider the breakdown of representative government in Illinois and propose measures to restore it. There was no certainty and not much probability that it would take a bold step. U. S. Senator Jonathan Bourne's speech at the night meeting of the first day's session, however, was so convincing as to the merits of the initiative and the referendum as a remedy for misrepresentation in government that on the following day the conference declared unanimously for their adoption. The value of the initiative and referendum as adjuncts to representative government in Oregon was so strongly urged that a strong and vigorous campaign for their adoption in Illinois was auspiciously organized to submit under the "little ballot" law of the State three questions for an expression of opinion: the merit system; the initiative and the referendum, and a corrupt practices act.

On the three questions submitted at the November election in Illinois on the "little ballot" the vote as to the initiative and referendum was:

Yes .....	447,908
No .....	128,398

Affirmative majority .....	319,510
----------------------------	---------

Percentage .....	78 per cent.
------------------	--------------

As to the enactment of a comprehensive and adequate civil service law, thus promoting efficiency and economy:

Yes .....	411,676
No .....	121,132

Affirmative majority .....	290,544
----------------------------	---------

Percentage .....	71 per cent.
------------------	--------------

As to the enactment of a corrupt practices act, limiting the amount a candidate and his supporters may spend in seeking office, and providing for an itemized statement under oath showing all expenditures so made, for what purposes made and from what sources received,

thus preventing the corrupt use of money at elections:

Yes .....	422,437
No .....	122,689

Affirmative majority .....	299,748
----------------------------	---------

Percentage .....	74 per cent.
------------------	--------------

The vote in Chicago was as follows:

Initiative and Referendum.. Yes..	150,941
No ..	55,369

Percentage .....	73 per cent.
------------------	--------------

Civil Service .....	Yes..147,480
No ..	51,568

Percentage .....	74 per cent.
------------------	--------------

Corrupt Practices .....	Yes..144,299
No ..	51,170

Percentage .....	73 per cent.
------------------	--------------

#### INJUNCTION. THE BUCK'S STOVE CASE.

The cases growing out of the injunction granted to the Buck's Stove and Range Co. against the American Federation of Labor et al. were merged in one suit and finally set for argument before the United States Supreme Court, January 16, 1911. General opinion with reference to these cases changed little; the two view-points which had divided the Supreme Court of the District of Columbia in its decision of November, 1909, on the violation of the injunction by leaders of the Federation were frequently reiterated. Thus, some held that the question of the rightfulness of the original injunction was not an issue, and that, therefore, the sentence for violation should be sustained; but President Gompers and other labor sympathizers held, with Chief Justice Shepard, that the original injunction exceeded the power of the Court, because it infringed the constitutional right of freedom of speech and of the press, and was, therefore, null and void. See LABOR, AMERICAN FEDERATION OF.

**INJUNCTION AGAINST SYMPATHETIC STRIKES AND THE "CLOSED SHOP."** Various notable injunctions were issued in labor disputes during the year. In Los Angeles, Judge Boardwell issued an injunction restraining metal-workers from picketing in New York City, Justice Gerard of the Supreme Court, in connection with the strike of the shirt-waist makers (see STRIKES AND LOCKOUTS), issued an injunction restraining a sympathetic strike. Such a strike is in many respects similar to a secondary boycott and was held by the Court to be an unlawful interference with the rights of an employer to a free market in which to sell his product. Still more notable was the injunction granted by Justice Goff of the New York Supreme Court on August 27 against striking cloak-makers. He declared a strike against the "open shop" and for the "closed shop" to be illegal in purpose. The purpose being illegal, the strikers were enjoined from any acts, such as peaceful picketing and patrolling, for the accomplishment of that purpose. The strikers were even enjoined from calling on non-strikers at their homes, and attempting to persuade them to strike, and from following them in the street. He held that violence, disorder and threats on the part of the union directed against the members of the Employers' Association and their employees were proof of civil conspiracy and all such acts were restrained. He refused, however, to grant injunction against holding meetings for the expression of opinion. This decision was viewed

with considerable alarm by labor leaders throughout the country. As it had been a strike primarily for the recognition of the union and was now enjoined as illegal, some trade unionists were inclined to interpret the decision as the severest blow yet delivered to the development of the trade-union movement in the United States. There were those who held that the injunction was properly issued because its direct object, the "closed shop," is obnoxious to American institutions. Still others held that the right to strike for any reason whatever should be guaranteed, but that in all cases in which the public is the most interested party the government should provide other means of settling disputes. The strikers kept up a steady resistance to the injunction, eighty-five of them being arrested in a single day. The settlement of the contest a few days later prevented the final adjudication of the issue of the legality of the injunction by a higher court.

A still more comprehensive injunction was issued in Massachusetts by Judge Richardson against the Photo-Engraving Union. It forbade picketing or engaging in a sympathetic strike by any means. It set forth the doctrine that any strike not originating in a shop where the alleged grievance is found is illegal. The Court also held that a strike for the purpose of compelling an employer to unionize his shop goes beyond the legal limits, being contrary to the principle of freedom of contract.

**PROPER SCOPE OF INJUNCTIONS. SECONDARY BOYCOTT.** Two important sessions of the American Academy of Political and Social Science were devoted in part to discussions of the law of injunctions and its administration (see *Annals of the Academy* for July and September). These discussions dealt with the meaning, scope, and proper limitation of the injunction. Court decisions were cited to sustain the contention that the use of the injunction is limited by law and practice to the protection of property only; and others were cited to show that the injunction has been used to protect personal rights and to prevent injury to a person or his business opportunities. Some held that it is an abuse of the injunction to use it to enjoin a person from doing a criminal act, because, if such an injunction be violated, one judge tries, convicts and sentences him without trial by jury; but others held that since prevention is so much more valuable than cure, the injunction is often the only means of speedily checking a criminal act. The use of the injunction in trade disputes is very intimately bound up with the legal status of the boycott, because the injunction against the Federation of Labor was to restrain a boycott. The courts have come uniformly to forbid the secondary boycott, that is, combined action against one party to prevent a third party from doing something he wishes to do or to force him to do something which he does not wish to do. It was brought out that in this country trade unions resorting to the primary boycott have been enjoined both as a conspiracy under the common law and as a combination in restraint of trade under the Sherman Anti-trust Law. Discussion brought out that a number of years ago a bill with provisions substantially the same as the British Trades Disputes Act of 1906 was reported favorably to the United States Senate by Senator Hoar of the Judiciary Committee; but it was recommitted. It also brought out that in 1903

California passed such a law. There was thus much favor and some opposition to the proposal that laws be passed in the United States making it possible for two or more persons to combine to do an act which they may lawfully do as individuals. It was also contended that what acts are to be viewed as legal and what as illegal should be determined by legislative action and not by courts. President Gompers repeated his contention that even a secondary boycott cannot be rightfully restrained by a court order so long as its primary object is not to injure an employer but to advance the interests of a trade union, or the trade-union movement in general.

**PRESIDENT TAFT'S RECOMMENDATIONS.** In his annual message President Taft urged the passage of a law authorizing the issuance of injunctions in equity without notice. His reasons were that this had been promised and that it would ward off more radical legislation legitimizing the secondary boycott. Two bills were before Congress at the close of the year. The Moon bill embodied President Taft's doctrines; the Wilson bill, dealing with the use of injunctions in trade disputes and limiting the meaning of the term "conspiracy" in certain cases, was in accord with the demands of labor leaders.

**INSANITY.** On October 1, 1909, Secretary Copp of the Massachusetts State Board of Insanity reported the number of insane in that commonwealth as 5835 males and 6217 females; total, 12,052, of which number 241 were boarded in families and 321 were resident in private institutions. The ratio, therefore, is 1 insane person to every 270 of the estimated population of the State. There were in addition 574 unrecovered insane who were temporarily absent from institutions. The increase for the year was 508, against 776 for the previous annual period. The number of commitments was 2911, and the number of voluntary admissions was 185, compared with respectively 3000 and 195 last year. First cases admitted totaled 2451. Alcohol was assigned as the causative factor in 19.30 per cent. The recovery rate was 12.60 per cent. of commitments, against 13.65 the previous year.

Dr. Ferris, president of the New York State Commission in Lunacy, reported the number of committed insane in the State and private institutions as 15,655 men and 17,003 women, on September 30, 1910. Of this number 1052 were in the licensed private houses, and 1161 were inmates of Matteawan and Dannemora hospitals for insane criminals. The net increase for the year was 1119, against 1014 the previous year, and 1246 two years ago. The total number admitted during the period was 7063, of which total 5598 were first cases and 1465 were readmissions. Of the admissions, 31 were promptly discharged as mere inebriates, 7 were simple drug cases, and 32 were not insane under the statute. Of all patients in the State hospitals, 27,950 were supported by the State, 2245 paid the bare cost of maintenance (except lodging), and 252 were rated as of the private class. From the 13 civil State hospitals 1553 were discharged recovered, 382 as much improved, and 830 as improved, while 2526 died during the year. The voluntary admission provision of the law was invoked in the case of 210 persons, omitting those received as voluntary patients by the private licensed houses. The amount disbursed for maintenance for the

year was \$5,659,942. Upon new buildings, extraordinary repairs or equipment or emergencies was expended \$1,326,961. The annual per capita cost of maintenance (exclusive of estimated cost of lodging) was \$189.14. The overcrowding amounts to 2400 patients, with buildings providing quarters for 1400 in process of completion. At the very close of the calendar year an option was practically given for the sale of 7 acres of the Creedmoor Rifle Range for \$3000 per acre, the remainder of the 200 acres being at once put upon the market, the proceeds to be used for the purposes of the Long Island State Hospital. The new Mohansic State Hospital at Yorktown, N. Y., was constituted, twelve patients were received into a farmhouse, and four farmhouses were remodeled for permanent occupancy as part of the new group, to accommodate 2000 patients. Two additional sites should be in the possession of the Commission at once, if the increase is to be accommodated in due time. The Psychiatric Institute, in connection with all the hospitals, continues in inadequate quarters on Wards Island, in a building of the Manhattan State Hospital. The former Director, Dr. Adolf Meyer, having resigned to go to the new Psychiatric Hospital in connection with Johns Hopkins Hospital at Baltimore, on February 1, Dr. August Hoch was chosen Director to succeed him, in charge of the courses of instruction and laboratory and research work. Dr. F. Lyman Wells was added to its staff as associate in experimental psychology. Six inter-hospital conferences were held by delegates from surrounding hospitals at Manhattan, Binghamton, Buffalo, Central Islip, Kings Park, and Gowanda, as arranged by the Director. The statistician continued his medical case history studies and tabulations. A campaign for the prevention of insanity was begun by a paper on "Possible Preventive Measures in Insanity," read by Dr. Ferris at the Washington, D. C., meeting of the American Medico-Psychological Association in May. After coöperation with the State Charities Aid Association was arranged, a public meeting for the enlistment of interest by physicians and social science workers was held in the N. Y. Academy of Medicine, December 23, at which addresses were delivered by Commissioner Ferris, Professor Starr, Homer Folks, and Samuel M. Lindsay. The next public meeting will be held in Rochester in March, 1911. The ratio in New York is 1 insane to 279 of the population.

The report of the Commissioners in Lunacy for England, issued in August, shows the number of certified insane persons in England and Wales on January 1, 1910, as 130,553, a net increase of 1766 over 1909, against an increase of 2703 the previous year. The average annual increase has been 2394. Increases occurred in the county and borough asylums, in the registered hospitals and in the metropolitan licensed houses, as well as in the criminal asylums (Broadmoor and Parkhurst); while decreases were shown in the provincial licensed houses, ordinary workhouses and the metropolitan district asylums. There were 11,424 in the workhouses, 858 in the criminal asylums, and 97,580 in county and borough asylums, and 593 private single patients, the total private patients under care being 10,616. The ratio of notified insane to the population was 1 to 277. Ten years ago the ratio was 1 to 302. During the

year 21,764 were admitted, of these 18,346 being first cases. The recovery rate, reckoned upon the total admissions, was 35.98 per cent., an increase of 06 over last year. As "relieved" or "not recovered" 2186 were discharged, while 10,138 died. This death-rate is more than six times as high as the general death-rate.

The Commissioners in Lunacy for Scotland report 17,845 known insane on January 1, 1910, including 53 in Perth prison, and 2963 in private houses, noting an increase of 140. Besides, there were 99 voluntary patients on the first day of the year. As recovered, 1245 were discharged, and 518 as unrecovered; while 1393 died. In private dwellings 2183 were provided for, an increase of 17 for the year, 956 of these being with relatives, and 1887 with unrelated guardians. There are 416 specially licensed houses for 2 patients each, 143 licensed to take 3 patients each, and 55 licensed to take 4 patients each, all of the poor class; while 23 houses are licensed to receive 2, 3, or 4 patients of the private class. A family which takes but one patient "requires no special license." The net annual cost per patient for maintenance is \$215.28.

The report of the Inspectors of Lunatics for Ireland shows that the total of insane on January 1, 1910, was 24,144, an increase of 213 over the previous year. Of this number 2655 are in workhouses, 901 in private asylums, and 144 single Chancery patients in unlicensed houses. During 1909, 1382 were discharged recovered, being 38.4 per cent., based on the admissions. The number of deaths was 1542. At the Purdysburn branch of the Belfast District Asylum the system of detached cottages, forming a "villa colony," was introduced into Ireland by Dr. Wm. Graham, and the 395 patients at Purdysburn are all employed. All villas are "open," and the patients, in groups of fifty, are cared for by two married attendants in each villa, other attendants performing special work. There were 174 criminal insane in Dundrum, an increase of 6 patients over last year. Next to hereditary influences, "intemperance in drink" is the most frequent cause. (See NEW YORK.)

**INSCRIPTIONS.** See ARCHÆOLOGY.

**INSECTICIDES.** See ENTOMOLOGY.

**INSECT PARASITES.** See ENTOMOLOGY.

**INSECTS AND THE PROPAGATION OF DISEASE.** The list of insects that are known to communicate disease to man is ever increasing in length, and the study of tropical diseases now goes hand in hand with entomology (q. v.). So necessary has the study of insect life become, that the English secretary of state for the colonies has appointed an Entomological Research Committee for tropical Africa, to organize and coördinate the investigations which are being made in this direction in Egypt, in the Sudan, in Rhodesia, and the South African states. This committee publishes the result of its work in the *Bulletin of Entomological Research*. The number of known insect species in tropical Africa has increased, according to one authority, from about 50,000 in 1830, to 220,000 in 1881, and to 450,000 in 1910. It is believed that there are still millions of unstudied species. How many of these are concerned in the transmission of disease can only be conjectured, but it now seems probable that all biting insects can harbor and disseminate pathogenic germs.

Sambon studied a species of sand-fly or midge, *Simulium*, found in certain pellagrous districts in Italy, and believes that this insect is intimately concerned in the spread of pellagra. His conclusions are based on the following observations: Pellagra follows the water courses, and only persons living in the open are attacked. The *Simulium* breeds in water and never enters houses. The disease is not contagious, only persons exposed to the bites of the fly being affected. Finally, the occurrence of pellagra coincides, both as to season and locality, with the distribution of the sand-fly. See PELLAGRA.

The transmission of trypanosomiasis has hitherto been thought to be due solely to the tsetse fly, but the experiments of Minchin and Thomson apparently indicate that sleeping sickness may also be communicated by the flea. In their experiments, the *Trypanosoma lewisi* and the rat flea were employed. The fact of transmission was proved—that is, the rat flea can transmit the trypanosoma from infected to healthy rats. The incubation period in the flea is six days or more, while the developmental period in the rat is twelve days. (See SLEEPING SICKNESS.) From Brazil, Chogas reported on a trypanosome especially injurious to children, and transmitted by the *Conorhizus megalus*.

Ricketts and Wilder succeeded in proving the connection of the louse (*Pediculus vestimenti*) with the transmission of tabardillo, or Mexican typhus fever. Having established the fact that certain monkeys (*Macacus sinicus*) could be inoculated with the disease by the injection of blood from human patients suffering with typhus, they allowed lice, taken from the clothing of typhus patients, to bite selected animals, which promptly gave evidence of tabardillo infection. These experiments will doubtless pave the way for the eradication of this very prevalent disease in Mexico.

Miller reported an infection of the skin due to the larvae of the *hypoderma lineata*, the "ox-warble fly," which is a common parasite of cattle. The eggs of this fly are deposited on the hair of cattle, and are carried by licking into the mouth of the esophagus, where they adhere until the larvae are developed. The latter burrow through the tissues of the neck until they reach the skin, where they do considerable damage to the hide. Miller's case is believed to be the first in which the infection has attacked human beings.

Another disease which has recently been traced to insects, is "straw itch," an eruptive skin malady due to the bite of a small mite (*Pedioulodes ventricosus*). This insect preys on the larvae of certain insects which live on grain, and especially wheat. It remains on the straw, and may attack man during the handling of the grain, or if the straw is used in filling mattresses, those sleeping on them may be attacked. The main symptoms of the disease are a severe itching, and an eruption consisting of wheals surmounted by vesicles, which develop in a few hours into pustules. Outbreaks of what is thought to be straw itch have been reported from various points in New Jersey, Maryland, Pennsylvania, Ohio, and Indiana. An exact knowledge of the nature of this disease is due to the investigations of Goldberger and Schamberg of Philadelphia.

A popular summary of the subject of insects in relation to disease will be found in a recent

book by R. W. Doane, entitled *Insects and Disease*, New York, 1910.

**INSTITUTE OF TECHNOLOGY, MASSACHUSETTS.** See MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

**INSURANCE. LIFE INSURANCE. STATISTICS.** According to the report of the Superintendent of Insurance of New York there were thirty-six companies doing business in that State on December 31, 1909; these companies do fully 95 per cent. of the entire business of the country. Of these, thirteen were New York companies; twenty-two had headquarters in other States, and one was a foreign company. The total amount of insurance in force in these companies was \$13,927,405,000. This contrasted with \$6,947,096,000 of insurance reported by forty companies in 1901; and with \$10,613,333,000 reported by forty-three companies in 1906; the gross assets in 1909 were \$3,467,896,000; liabilities, including capital, \$3,305,055,000. The assets and liabilities were more than double those of 1901. The premium income was \$512,167,000, or only \$13,000,000 more than the premium income of companies reporting Dec. 31, 1906. The insurance report calls attention to the fact that the legislation of 1906 limiting the expenses of insurance companies saved to policy holders \$10,493,000 during the year. It also called attention to substantial increases in dividends paid by leading New York companies, amounting to a substantial reduction in net premiums.

**ASSOCIATION OF LIFE INSURANCE PRESIDENTS.** The fourth annual meeting of this Association was held in Chicago, December 9-10. The chief subject of discussion was vocational training in colleges, especially collegiate instruction in insurance and subjects calculated to prepare graduates for insurance as a life-work. Both President James of the University of Illinois and President Judson of the University of Chicago expressed themselves as strongly in favor of the movement toward vocational training; they were agreed in thinking training to be desirable for the prospective business man or insurance agent, as well as for the lawyer or physician. Various insurance officials presented the opportunities for college-trained men and women in the insurance field. A paper on the nature and extent of life insurance instruction in colleges and universities with complete statistical analysis, was presented. A second general topic of discussion was preventable diseases and the fight against them. Besides papers on modern sanitation and the work of the census in vital statistics, a report of the Association's Committee on Life Extension was read. This report stated that companies which have written more than 20,000,000 out of 28,000,000 policies in force in the United States were engaged in some form of activity to better the health and prolong the lives of their policy holders. Especial attention was called to the activities of the Metropolitan Life Insurance Company and the Provident Savings Life Assurance Society for spreading health information and giving free medical advice and examinations. At a meeting at Washington in January the Association considered the advantages of uniform State legislation. The larger companies have expressed a preference for Federal regulation, owing to the dissimilarity of present State requirements.

**THE METROPOLITAN LIFE INSURANCE COM-**

**PANY.** The welfare work of this company began with a campaign of education among superintendents, agents and policy holders. The first attack was on consumption. Some 4,000,000 pamphlets, printed in ten languages, and setting forth causes, extent, prevention, and treatment, were put into the hands of those of its 9,000,000 industrial policy holders most needing them. It printed for similar distribution a list of anti-tuberculosis agencies in the United States and Canada. It made arrangements with visiting nurse associations in over forty cities to supply policy holders with nurses at a fixed rate per visit. It organized more than one hundred tuberculosis exhibits; and distributed a pamphlet on directions for living and sleeping in the open air. Finally it began the establishment of a sanatorium for its own policy holders. In all this there was no pretense of charity.

**EQUITABLE LIFE ASSURANCE SOCIETY.** The agreement under which 502 shares of the capital stock of this company had been held by a voting trust for five years expired June 15. The control of the stock had meanwhile passed from Mr. Thomas F. Ryan to Mr. J. P. Morgan. The latter took up the matter with Governor Hughes and the New York State Department with a view to the mutualization of the company. Plans were partly formulated whereby this could be accomplished without protracted litigation or a reduction of the surplus. By an agreement made December 31, 1910, Messrs. Morgan J. O'Brien, Lewis Ledyard and George W. Perkins were made a new voting trust to control this stock until the mutualization plans could be completed.

**UNION CENTRAL LIFE INSURANCE COMPANY.** This company declared a stock dividend of \$400,000 in 1908 from profits accruing from non-participating policies. Suit was brought by the Attorney-General of Ohio, on the ground that this company was not a stock company and that the surplus, therefore, belonged to the policy-holders. The Circuit Court of Hamilton County, Ohio, upheld the action of the company on the ground that it is not a mutual company and that, therefore, its surplus of \$2,400,000 belongs to it and not to its policy holders.

**NEW YORK STATE DEPARTMENT ACTIVITIES.** This department made a number of important examinations of companies doing business in that State. It was shown that the Phenix Insurance Company of Brooklyn had not been examined in twenty-two years; that the president had manipulated the assets of the company with resulting loss of \$1,000,000; that its reports had been grossly falsified for years; and that a former superintendent of insurance and other officials had carried large loans with the company. The exposure resulted in the death of the president, Mr. George P. Sheldon, and the merging of the company into the Fidelity-Phenix Fire Insurance Company. A law was passed requiring an examination of such companies once in every five years. The Dutchess Fire Insurance Company, the successor of the Dutchess Insurance Company which had suffered heavy losses in the San Francisco disaster, was found to have practiced fraud in reinsuring the risks of its predecessors. Its president was indicted, but the jury disagreed as to his personal guilt. A final settlement of this affair was not reached.

The law of 1909 gave the insurance department power to liquidate the affairs of any com-

pany found to be unsound. Of twenty-nine proceedings begun under this law, ten were completed. It was found that much time, money and needless litigation were saved by this new method of winding up the affairs of delinquent and decrepit insurance companies. Of the companies liquidated two had no assets, one paid twelve per cent., and the others one hundred per cent. of the claims of policy holders. The year's experience showed this plan to be greatly superior to liquidation by receiverships. The department carried on an investigation of the legislative expenses of New York companies. It found that they had spent very large sums for legislative purposes in the years of 1901-03-04-05-06-09. These expenditures included traveling expenses, lawyers' fees, so-called retainers of legislative lawyers, contributions to political committees and politicians, and entertainment of legislators.

**LEGISLATION.** Perhaps the most important single piece of life insurance legislation was the enactment by the New York Legislature whereby the legal limitation of \$150,000,000 on the amount of new insurance to be written by any company in a single year was set aside; there was substituted for it an automatic brake permitting those companies showing the greatest savings to write slightly larger totals each year. This new law was made applicable to all companies doing business in the State, whereas the previous law checked the operations of only one or two of the largest New York companies. The Ohio law was amended so as to permit minors between fifteen and twenty-one years of age to contract for life insurance, surrender policies, and give valid discharges.

**PROMOTING COMPANIES.** The past few years have witnessed the beginnings of many new life insurance companies. Not fewer than 125 companies have begun since 1906. At least eight of these had failed by the close of 1910, and a number of others were known to be unsound. Many were run primarily in the interest of shrewd but unscrupulous organizers. Following the insurance scandals of 1906 new companies were launched in astonishing numbers, especially in the West and South. The promoters would sometimes sell stock in the new insurance company itself; but more frequently they sold the stock of a holding company, the insurance company to start operations as soon as a definite amount of capital had accumulated. These holding companies were variously known as "insurance-investment" or "securities" corporations. This device of a holding corporation gave the promoters easy control, and avoided examinations by State insurance officials. The New York Legislature ordered an investigation of 20 new promotions begun in that State within a few months; the results were made known in October. A number of promoters had fled; the public was informed of the means by which the stock is sold, and the high commissions paid before real insurance business is begun. Similar inquiries were being planned in a number of States. It must be said also that a considerable number of new companies have started right and have been operated honestly.

**FIRE INSURANCE.** The New York Insurance Department reported that there were 170 stock fire insurance companies doing business in that State in the year ending December 31, 1909. They had \$40,429,733,000 insurance in force;

\$516,866,000 assets; \$370,112,000 liabilities; and \$272,711,000 premium income. These companies although less than one-third of all the companies doing business in the United States had more than four-fifths of all the fire insurance in force and seventy-five per cent. of the premium income of all companies operating in America. The amount of risks in force was eighty-five per cent. greater than in 1900 and the premium income very nearly double that of 1900. Although there are a great many mutual fire insurance companies the total volume of their business is small; thus during 1909 mutual companies doing business in New York State wrote fire insurance risks to the amount of only \$119,918,000. The total amount of risks written by all companies doing business in that State was \$33,236,986,000. The total amount of losses paid by all these companies in 1909 was \$137,537,000. This was ninety per cent. of the fire losses paid by all companies in the United States. The aggregate losses from fires in the entire country as computed by the *Journal of Commerce and the Commercial Bulletin* was \$203,649,000 that year. The aggregate fire losses for 1910 approximated \$225,000,000, an amount almost equal to the annual average during the past eight years.

*New York Legislative Investigating Committee.* A committee of the New York Legislature of 1910 carried on an extensive investigation into fire insurance companies operating in that State. This investigation was ordered at the recommendation of Governor Hughes and the Superintendent of Insurance following the disclosures of the activities of the Phenix Insurance Company of Brooklyn mentioned in the preceding paragraphs. The investigation showed that many company officials had paid heavily for the services of legislative agents, such services often being of no value. While the chief result of the investigation was to demonstrate that heavy expenditures for lobbying are both wasteful and criminal, it was expected also to have an important bearing on the general problems of fire insurance. Thus the committee took up such matters as the licensing of agents and brokers; the authorization of a State fire marshal; improvements in fire prevention methods; the standardization of fire policies; and the regulation of mutual companies operating in special lines.

*Legislation.* The New York Legislature amended its laws by permitting fire insurance companies to do ocean marine business, and ocean marine companies to write fire insurance; by regulating the reinsurance of risks; by providing for a standard typewriter form of fire policy; by placing town and county coöperative fire insurance companies under the regulation of the State Department. Texas, which had driven many fire insurance companies out of the State by its stringent legislation, revised its law by making it somewhat more liberal, though still authorizing the State Rating Board to fix maximum rates. Louisiana created a similar rating board authorized to compel companies to lower rates deemed excessive or unreasonable, such rates being binding unless set aside by the courts.

**FRATERNAL INSURANCE.** For a number of years much interest has attached to fraternal and mutual benefit societies writing insurance policies. It has been known that a vast number of these companies were not on a sound actu-

arial basis but efforts at reform have met with serious opposition. The National Convention of Insurance Commissioners in 1910 approved a uniform fraternal bill whereby such companies would be required to issue policies based on certain general uniform requirements. The provisions of this uniform bill, which were formulated by leaders of fraternal societies and endorsed by the National Fraternal Congress and by the Associated Fraternities of America, are not sufficiently vigorous to insure the safety of such societies but are a long step in the right direction. There were 66 fraternal societies reporting to the New York department in 1909. They had \$5,701,856,000 insurance in force; \$89,080,000 assets; \$10,432,000 liabilities; and \$73,530,000 premium income. The Superintendent of Insurance stated, however, that "there are thousands of unauthorized mutual benefit associations actually doing the business of insurance in this State."

It is computed that the insurance liabilities, present and prospective of combined fraternal societies exceed their assets by four billion dollars. This is due to the fact that they are not on a sound actuarial basis. They have thrived during early years, their promoters have often become wealthy; but as their membership becomes older the death payments begin to outrun the income. The result is that they are compelled to disband or raise their rates. A study of 3500 such societies which began in the past forty years and of which 3000 have failed, showed that their average life is about fifteen years. In 1910 there were nearly 650 well-known fraternal benefit societies in the United States and Canada, with an aggregate membership of 8,000,000 and total insurance of \$9,000,000,000. In 1907 they collected \$126,000,000 and paid out \$94,000,000 in losses. Their assets then equaled \$125,000,000 and their immediate liabilities were only \$14,000,000. It is a mathematical certainty, however, that most of these societies will soon find their liabilities increasing at an accelerated rate and their assets increasing very slowly or even diminishing. For ten years some of the larger societies have agitated increases of their assessment rates. Usually all members are assessed at the same rate without regard to age. Reform plans involve assessments either graded according to age of entrance or increasing as age advances. Only a few societies have been fully successful in putting their assessments on a sound insurance basis. It is now proposed as a third plan of reform to require all members sixty years of age or over to pay sums commensurate with the risk involved in carrying them or to drop out. It is argued that such members have had the benefit of protection during previous years and have thus received full value for their payments. The agitation for reform of assessments has not in any way attacked the general soundness and desirability of fraternal insurance, provided the rates be sufficiently high to insure permanent safety.

*Legal Difficulties.* Effort was made by the Catholic Mutual Benefit Association and by the Royal Arcanum to place themselves on a sounder basis by raising their assessments. This, of course, met with objection from certain members unwilling to pay higher rates. In both cases the New York courts sustained the objection, on the ground that these societies had no reserved power whereby they could force a

member to pay higher assessments than those agreed upon in the certificate of membership. The effect of these cases must be to force many orders to disband, which otherwise would be able gradually to move to a safer basis; for it will be practically impossible for them to get the consent of the vast majority of members for a voluntary increase in assessments.

**Liquidation.** The New York department liquidated several fraternal societies during the year and examined a number of others. It found that the National Protective Legion was writing five-year endowment or dividend contracts which not only gave insurance protection but also cash dividends double the amount paid in. On this basis the Legion grew rapidly; and out of its growing income was able to meet its obligations. Under the pressure of the insurance department this form of contract was discontinued January 1, 1911.

**Conferences.** The National Fraternal Congress met in Detroit, August 15-21, and the Associated Fraternities of America met a week later at Atlantic City. Their reports showed rapid progress in fraternal insurance. The Congress advocated State supervision and periodical valuation as means necessary to the safety of their insurance. This was deemed especially important because fraternal insurance is largely workmen's insurance.

The following list includes the leading fraternal organizations in the United States, with their membership and disbursements since their founding.

	Date of Foundation	Member- ship	Benefits Dis- bursed
Ben Hur, Tribe of .....	1894	110,360	\$ 7,095,364
B'nai B'rith, Independent Order of .....	1843	35,164	
B'rith Abraham Order.....	1859	69,489	4,682,558
Brotherhood of American Yeomen .....	1897	111,550	
Catholic Benevolent Legion .....	1881	16,402	21,032,821
Catholic Knights of America .....	1877	20,000	16,700,000
Catholic Mutual Benefit Association.....	1876	60,345	22,241,315
Court of Honor.....	1805	64,769	6,875,800
Druids, United Ancient Order of .....	1781	30,529	7,009,415
Eagles, Order of .....	1889	306,000	6,562,837
Elks, Benevolent and Protective Order of .....	1868	331,288	3,347,228
Foresters, Ancient Order of .....	1836	41,388	147,000,000
Foresters of America .....	1864	231,996	30,000,000
Foresters, Independent Order of .....	1874	235,800	29,121,616
Fraternal Brotherhood.....	1896	46,000	1,994,430
Fraternal Union of America .....	1896	29,258	2,324,091
Free Masons .....		1,389,317	
Golden Cross, United Order of the .....	1876	18,015	10,652,768
Heptasophs, Improved Order of .....	1878	74,656	16,677,743
Hibernians of America, Ancient Order of .....	1836	250,000	
Irish Catholic Benevolent Union .....	1869	16,000	2,650,506
Knights and Ladies of Honor.....	1877	76,000	28,892,000
Knights of Columbus .....	1882	250,000	4,290,297
Knights of Honor .....	1873	20,460	95,258,292
Knights of Malta, Ancient and Illustrious Order of the .....	1049	30,000	
Knights of the Golden Eagle .....	1873	86,367	5,036,313
Knights of Pythias.....		706,922	
Knights of the Maccabees of the World .....	1883	300,000	42,125,000
Knights of the Modern Maccabees.....	1881	106,883	15,553,848
Ladies' Catholic Benevolent Association.....	1890	118,694	8,866,735
Ladies of the Maccabees of the World.....	1892	155,184	7,983,019
National Union.....	1881	64,751	31,953,980
New England Order of Protection .....	1887	66,676	8,756,500
Odd Fellows .....		1,480,039	
Protected Home Circle.....	1886	71,789	5,393,848
Red Men, Improved Order of .....	1763	480,574	26,807,512
Royal Arcanum .....	1877	245,610	135,573,716
Royal League.....	1883	30,304	7,389,411
United American Mechanics, Order of .....	1945	46,217	
United American Mechanics, Junior Order of .....	1853	210,000	5,500,000
United Workmen, Ancient Order of .....	1868	110,086	172,310,959
Woodmen of America, Fraternity of Modern.....	1883	1,045,869	90,992,470
Woodmen of the World.....	1890	500,369	4,172,568

**INSURANCE, FIRE.** See FIRE PROTECTION.  
**INSURGENTS.** See UNITED STATES, Con-  
gress.

**INTENSIVE FARMING.** See AGRICUL-  
TURE.

**INTEREST.** See BANKS.

**INTERIOR, DEPARTMENT OF THE.** See PUB-  
LIC LANDS.

**INTER-LIBRARY LOANS.** See LIBRA-  
RIES.

**INTERNAL COMBUSTION ENGINES.** A large passenger ship was building at Glasgow for the New York and Libau service of the Russian-American Line that will be engine by Burmeister and Wain, Copenhagen, with a slight modification of the Diesel engine. The vessel was to be propelled by three screws, with two internal combustion motors driving each screw and having a total horse-power of 7000. This is expected to give her a speed of 17 knots. The oil supply will be carried in the ship's double bottom and will be pumped up to smaller supply tanks. An auxiliary engine will drive a compressor for storing air for starting as well as for ventilating the engine rooms. The vessel will carry 8000 tons of cargo and 1600 passengers, and was expected to be in service in September, 1911.

**OIL ENGINE TANK SHIP.** Progress in the application of internal combustion engines to ocean-going vessels during the past year is noted in the construction of a tank ship at Amsterdam, Holland, for service in the Dutch East Indies. She is 196 ft. long, 37 ft. 9 in. beam, and 13 ft. depth of hold, divided into three separate holds for the transportation of three grades of oil or naphtha, benzine, etc. The vessel is of 1900 tons displacement, with a mean draught of 10 ft. 2 in., and has a speed of 8.4

knots an hour. She is propelled by a six cylinder, 4 cycle, single acting Diesel engine with cylinders 15¼ inches diameter and 23½ inches stroke, which at 180 revolutions per minute develops 500 brake horse-power. The valve gear,

as well as that for reversing, is very simple and compact. There is also a 45-horse-power Diesel engine driving an air compressor. The air is stored in a tank of 620 cubic feet capacity at 300 pounds per square inch pressure and is used for starting the main engine of the ship.

**INTERNAL REVENUE.** See UNITED STATES, *Receipts and Disbursements*.

**INTERNAL WATERWAYS.** See WATERWAYS.

**INTERNATIONAL AGRICULTURAL INSTITUTE.** See AGRICULTURE.

**INTERNATIONAL ARBITRATION.** See ARBITRATION, INTERNATIONAL.

**INTERNATIONAL ART EXHIBITION.** See PAINTING.

**INTERNATIONAL ASSOCIATION FOR LABOR LEGISLATION.** See LABOR LEGISLATION.

**INTERNATIONAL AVIATION AND BALLOON COMPETITIONS.** See AERONAUTICS.

**INTERNATIONAL COMMISSION FOR THE STUDY OF DISEASES OF OCCUPATION.** See OCCUPATIONAL DISEASES.

**INTERNATIONAL CONGRESS OF PUBLIC RELIEF AND PRIVATE PHILANTHROPY.** See CHARITY.

**INTERNATIONAL COPYRIGHT.** The year 1910 was marked by important copyright movements. The Berlin convention came into force on September 9, ratified (without reserve) by Belgium, Germany, Haiti, Liberia, Luxemburg, Monaco, Spain and Switzerland; and (with certain reservations) by France, Japan, Norway and Tunis. Pending necessary legislation to ratify the Berlin convention, Denmark, Great Britain, Italy and Sweden still remain within the International Copyright Union by virtue of adhesion to the Bern Convention of 1886. The Berlin Convention established a new and advanced basis of international protection by guaranteeing to the authors of any one of the countries of the Union who publish for the first time in any one of those countries, copyright in all the other countries of the Union without any formalities whatever, and independent of copyright in the author's work in his own country. The authors of each country within the Union thus become, so far as copyright is concerned, citizens of the entire Union; while the extent of the protection as well as the means of redress in case of infringement is regulated according to the legislation of each country where copyright is claimed, except as the terms of the convention may secure more extended rights than are secured by law in some of these countries. The convention expressly provides, moreover, that first publication in one of the countries of the Union of works by authors outside of the jurisdiction of any of these countries secures to such writers the protection accorded national authors. By reason of these liberal provisions, notwithstanding the United States cannot enter the Union because of the obligatory "American manufacture" stipulations of our copyright law, an American author, even though he may not have copyright in the United States can, by simply publishing his work in one of the countries of the Union, e.g. England, thereby secure the full protection accorded to native authors in the other fifteen countries of the Union. The convention pro-

poses a general term of copyright, the life of the author and 50 years after his death; but provides that if this term is not uniformly adopted, the period of protection is to be that accorded by the domestic law of each country of the Union. One of these, Spain, has even a longer term, viz., life and 80 years. Another change of great moment was secured by article 13 of the convention providing that authors of musical works shall have the exclusive right to authorize (1) the adaptation of these works to instruments serving to reproduce them mechanically, and (2) the public performance of such works by means of these instruments. This right is not retroactive, and any limitations or conditions relative to its application are to be governed by the domestic legislation of each country.

**PAN-AMERICAN COPYRIGHT CONVENTION.** The delegates to the Fourth International Conference of American States met at Buenos Ayres and on August 11, 1910, signed a convention agreeing to acknowledge and protect the rights of literary and artistic property in conformity with the stipulations of the convention. The Senate of the United States expressed its consent to the ratification of this Convention upon the part of this country. The basis of convention is the full protection in all the countries (according to each country's laws) of copyright obtained in any one of them without the necessity of complying with any formality other than the insertion in the work of a notice of copyright. The duration of the protection, however, shall not exceed the term granted in the country of origin, namely, that American country in which the work was first published or if it appeared simultaneously in several countries agreeing to the convention, then that country which grants the shortest period of protection. The conventional expression "Literary and artistic works" is defined to include, books, "writings," pamphlets; dramatic and musical compositions; choreographic works; drawings, paintings, sculpture; engravings; photographs; plans, sketches or plaster works relating to geography, geology, topography (including globes) and architecture, or any other science; "all productions that can be published by any means of impression or reproduction." The copyright includes the exclusive right to publish, to translate or to reproduce in any form, or to assign. Translations may be protected as such. Detailed provisions permit reports of addresses, and also the reprinting of newspaper contributions, when not expressly prohibited, upon statement of source and when not "literary, artistic or scientific writings." Infringement is defined, and confiscation of infringing copies provided for, without prejudice to indemnities or penalties recoverable in the country where the piracy took place. The convention shall become operative three months after ratification has been communicated to the Argentine government.

**BRITISH COPYRIGHT BILL, 1910.** The "Bill to Amend and Consolidate the law relating to Copyright," presented to the Parliament of Great Britain on July 26, 1910, repeals all former English copyright laws (except provisions expressly reserved), and upon enactment would be in force not only in the United Kingdom and the self-governing Dominions (Canada, Australia, New Zealand, South Africa, and Newfoundland, but also, upon proclamation by its governor, in any other British possession.

Copyright is in express terms secured only by statute, thus abolishing common-law protection. The term proposed is the life of the author and fifty years after his death, and for composite, encyclopedic or posthumous works, fifty years after publication; but in the case of books by foreign authors, the term may by royal order not exceed that in the foreign country concerned. Copyright is expressly granted in every original literary, dramatic, musical and artistic work by a British subject, or when the author of such work is resident (domiciled) within "His Majesty's dominions;" but protection may be granted works by foreign authors by a royal "order in council," upon assurance of reciprocal protection in the foreign country. To secure protection, however, every work must be first or at least simultaneously published (*i. e.* within fourteen days) within His Majesty's dominions. A copy of every book is required to be deposited at the British Museum within one month after publication, and upon written demand, made within three months after publication, also to four specified libraries in Oxford, Cambridge, Edinburgh, and Dublin. Failure to deposit involves a fine of £5, plus the value of the book. Foreign books, however, are not required to be deposited. Registration (optional, not obligatory) may be made at Stationers' Hall. If not made, however, the defendant in a suit for infringement may plead that he is an "innocent infringer" because not aware and without reasonable means of knowing that copyright subsisted in the work, and the plaintiff shall not be entitled to any remedy other than an injunction. In the case of works by foreign authors only such conditions and formalities as are especially imposed by the order in council need be complied with.

The bill secures the sole right to produce or reproduce the work in any material form whatever, and in any language; to perform, deliver, or dramatize it, and "to make any record, perforated roll, or other contrivance by means of which the work may be mechanically performed." Such records or rolls are declared to be subject-matter of copyright, as well as cinematograph productions, "works of artistic craftsmanship" and "architectural works of art," *i. e.* any buildings or structures having an artistic character or design. Infringement may be punished on summary conviction by a fine not exceeding 40 shillings for every infringing copy (not to exceed £50 damages in all), and the destruction of copies. When copyright is infringed by the construction of a building, no injunction can be obtained, to restrain the construction of such other building or to order its demolition. Actions for infringement must be commenced within one year.

**FOREIGN COPYRIGHT LAWS, 1910.** The new Argentine law (promulgated September 23) enacts that copyright shall be governed by the common law, subject to the conditions and limitations of the Act. The term is life of author and ten years and the protection includes works by foreign authors. The new law of Turkey (May 8, 1910) is quite modern in spirit, protecting "all literary and artistic productions" (including architecture) for life of author and thirty years. Amendatory laws were enacted by Germany (May 22), Japan (June 14), and Norway (July 21), to include the alterations required to enable ratification of the Berlin convention. The most important

new provisions relate to cinematographic productions and the control of reproduction by means of mechanical instruments in the case of musical works. The provisions of the German Act resemble those of our own law in providing that when one person has been authorized to use the music for such reproduction, any other person who has his industrial establishment or his domicile in Germany may demand the same privilege for an equitable compensation. In view of this legislation a presidential proclamation was issued on December 8, 1910, to the effect that the subjects of Germany are entitled in the United States to all the benefits of Section 1 (e) of the copyright Act of March 4, 1909, including copyright controlling the mechanical reproduction of music.

**INTERNATIONAL PEACE CONFERENCE.** See **ARBITRATION, INTERNATIONAL.**

**INTERNATIONAL PRISON CONGRESS.** See **PENOLOGY.**

**INTERNATIONAL SCHOOL OF PEACE.** See **ARBITRATION, INTERNATIONAL.**

**INTERNATIONAL UNION FOR SOLAR RESEARCH.** See **ASTRONOMY.**

**INTERNATIONAL UNION OF PENOLOGISTS.** See **PENOLOGY.**

**INTER-PARLIAMENTARY UNION.** See **ARBITRATION, INTERNATIONAL.**

**INTER-STATE COMMERCE COMMISSION.** See **RAILWAYS.**

**INVINCIBLE, THE.** See **BATTLESHIPS.**

**IODINE.** See **ATOMIC WEIGHTS.**

**IOWA.** One of the North Central Division of the United States. It has an area of 56,147 square miles. Its capital is Des Moines.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 2,224,771, as compared with 2,231,853 in 1900 and 1,912,297 in 1890, a decrease of 7082 in the decade 1900 to 1910. Iowa was the only State in the Union which showed a decrease in population. This decrease, however, was confined to the rural districts, as the cities and larger towns showed an increase. The State ranked fifteenth in point of population, whereas in 1900 it ranked tenth. The population of the larger cities and towns will be found in the tables in the article **UNITED STATES CENSUS.**

**MINERAL PRODUCTION.** The chief mineral product of the State is coal. In this it ranks ninth in point of production. There were produced in 1909 7,755,362 short tons as compared with 7,161,310 short tons in 1908. A large quantity of Portland cement is also produced. The clay working industries of the State are important, giving it fourth rank in production and value. Other mineral products are coal products, including coal tar and illuminating gas, and stone. A small quantity of lead is produced.

**AGRICULTURE.** The acreage, production, and value of the principal crops in 1909-10 are shown in the table on the following page.

**EDUCATION.** The school population between the ages of 5 and 21 was on June 30, 1910, 341,683 males and 335,321 females, or a total of 677,004. There were enrolled in the public schools 510,661 scholars, with a total average attendance of 360,178. There were 12,503 ungraded schools. The male teachers numbered 2689 and the female teachers, 24,900. The average monthly compensation of male teachers was

	Acreage	Prod. bu.	Value
Corn, 1910.....	9,473,000	343,870,000	\$123,793,000
1909.....	9,200,000	289,800,000	142,002,000
Winter wheat, 1910.....	180,000	3,816,000	3,244,000
1909.....	144,000	3,110,000	2,892,000
Sp. wheat, 1910.....	350,000	7,315,000	6,218,000
1909.....	295,000	4,336,000	4,032,000
Oats, 1910.....	4,800,000	181,440,000	48,989,000
1909.....	4,300,000	116,100,000	40,635,000
Barley, 1910.....	510,000	15,045,000	8,425,000
1909.....	495,000	10,890,000	5,009,000
Rye, 1910.....	32,000	592,000	379,000
1909.....	53,000	943,000	594,000
Buckwheat, 1910.....	3,000	119,000	99,000
1909.....	9,000	135,000	115,000
Flaxseed, 1910.....	16,000	195,000	429,000
1909.....	30,000	294,000	382,000
Potatoes, 1910.....	170,000	12,240,000	7,344,000
1909.....	145,000	12,905,000	7,098,000
Hay, 1910.....	3,600,000	3,780,000a	36,288,00
1909.....	3,648,000	5,983,000	42,419.00

a Tons.

\$72.01 and female teachers, \$45.21. The total expenditure for schools for the fiscal year 1910 was \$1,621,683. The school population and the enrollment in the State have both fallen off since 1900. The schools in the large towns and cities, however, show a growth.

**FINANCE.** The report of the State treasurer for the biennial period ending June 30, 1910, shows the total receipts from all sources for that period to be \$8,388,280. There was a balance on hand July 1, 1908, of \$644,189, making a total of \$9,032,470. The expenditures for the same period amounted to \$8,028,554, leaving a balance on hand June 30, 1910, of \$1,003,915. The chief expenditures were for education and for general expenses of the State government.

**CHARITIES AND CORRECTIONS.** The charitable and correctional institutions supported by the State are the following: College for the Blind at Vinton; Institution for Feeble-Minded at Glenwood; Industrial School for Boys at Eldora; Industrial School for Girls at Mitchellville; Hospital for the Insane at Independence; Hospital for the Insane at Mount Pleasant; Hospital for the Insane at Clarinda; Hospital for the Insane at Cherokee; State Penitentiary at Anamosa; State Penitentiary at Fort Madison; School for the Deaf at Council Bluffs; Soldiers' Orphans' Home at Davenport; Soldiers' Home at Marshalltown; Hospital for Inebriates at Knoxville and a Sanatorium for the Treatment of Tuberculosis at Oakdale. The total disbursements for the support of these institutions in the biennial period ending June 30, 1910, were \$3,949,464. The amount received by the State from these institutions was \$228,952, leaving a net cost to the State for the period of \$3,720,512.

#### POLITICS AND GOVERNMENT

There was no meeting of the legislature in Iowa in 1910, as the sessions are biennial and the last was held in 1909. The next session begins January 9, 1911. The State suffered a great political loss by the death, on October 15, of Senator Jonathan Prentiss Dolliver (q. v.). Governor Carroll appointed, to fill out his unexpired term Lafayette Young (q. v.) of Des Moines.

**CONVENTIONS AND ELECTIONS.** The campaign and elections of 1910 in Iowa were of national interest on account of the spirit of insurgency in the State. The insurgents or progressives are stronger in Iowa than in any other State in the Union, excepting possibly Kansas. The Sena-

tors from Iowa, Dolliver and Cummins, were the most aggressive and powerful opponents of the Payne-Aldrich tariff bill, and in this they represented a strong majority of the Republicans in the State. The regular Republicans, however, had an organization of considerable importance and this division strongly threatened to turn the State over to the Democrats. Primary elections for the selection of delegates to the convention and for nominations to State offices, and of Congressmen were held on June 7, and these showed the remarkable strength of the insurgents. Governor Carroll, a regular, received hardly sufficient votes for renomination, chiefly from having identified himself with the "standpat" element. In these primaries the insurgent Congressmen were all endorsed, and Congressman Hull, a conspicuous figure in the House, and one of the foremost of the so-called "standpatters" and anti-progressives, failed to secure a renomination. The campaign opened in Des Moines on May 10, when Senators Dolliver and Cummins made speeches in which they sharply criticised the Republican leaders in Congress, asserting that they were controlled by corporations; Senator Cummins named Senator Aldrich in the Senate, and Representatives Payne, Dalzell, and others of the same type in the House. Senator Dolliver bitterly denounced the new tariff.

The Democratic State Convention was held at Ottumwa on July 27. It was marked by a sharp fight over local option. The high-license wing of the party which holds the municipality to be the proper unit for local option, won a sweeping victory over the advocates of the county option plan. General James B. Weaver offered an amendment embodying the plan advocated in Nebraska by William J. Bryan (see NEBRASKA). This was defeated by a vote of 981 to 178. The convention ratified the ticket which was nominated at the primary of June 7, headed by Claude R. Porter of Centreville for governor. The platform denounced the tariff law as class legislation, declaring for initiative and referendum, and the direct election of United States Senators. The Republican State Convention met at Des Moines August 7. The convention was, to a large extent, perfunctory, as the nominations had already been made in the primaries. The chief issue was whether the progressives or the regular wing of the party should control the State. The convention was controlled from the beginning by Senators Cummins and Dolliver. Senator Cummins was elected temporary chairman, and in a remarkable speech in which he sought to eulogize Republican leaders, by beginning with Lincoln and ending with Roosevelt, he deliberately omitted the mention of President Taft. Over 500 delegates, representing the regular wing of the party, refused to allow him to continue until the name of President Taft had been included in the list. Senator Cummins, however, refused, and eventually was permitted to resume his speech. A struggle came over the election of permanent chairman. Senator Dolliver was the candidate of the progressive faction, while the regulars presented the name of J. C. Maybray. Senator Dolliver won over Mr. Maybray by 285 votes. This is the first time that a United States Senator from Iowa has ever been denied the honor of a unanimous vote by a Republican convention. Senator Dolliver in his speech of acceptance reiterated the statement expressed

by Senator Cummins and promised to stump the State in the fall elections in defense of his action at the last session of Congress. The most significant struggle came on the question of endorsing or condemning the Payne-Aldrich tariff by the Committee on Resolutions. Two reports were prepared. The majority report declared that the convention did not recognize the revision of 1909 as a satisfactory fulfillment of party promise. It favored the creation of an independent, non-partisan tariff commission and gave as its opinion that when the tariff is again revised its schedules shall be considered separately, so that each subject may be dealt with on its own merits and thus secure a fair and impartial action on the part of Congress. The minority report endorsed the action of President Taft in approving the tariff bill and commended his administration as prudent, business-like and economical. It also endorsed and commended the Iowa delegation in Congress for all efforts in support of the administration of President Taft, and for such aid and assistance as they had given him in carrying forward his administrative and legislative policies. The minority report was voted down by a vote of 834 to 549, after which the majority report was adopted by the same vote.

The campaign was a spirited one, and the loss of Senator Dolliver, who was, perhaps, the most efficient campaigner in the country, was severely felt. Several speeches in the State were made by Mr. Roosevelt. The election on November 8 resulted in the success of the Republicans, although Governor Carroll was elected by a small majority. The Democrats elected Congressmen in two districts, but the entire Republican State ticket was elected. Figures for the vote for governor were as follows: Carroll, Republican, 205,607; Porter, Democrat, 187,163.

On March 20, J. C. Maybray and thirteen others associated with him in the "Big Store" gang of swindlers were found guilty of conspiracy to use the United States mails to defraud. The prisoners were accused of conducting a vast swindle game through the aid of fake prize fights, fake wrestling matches, horse races and other confidence games. Thirty-two of their victims testified to having lost \$2,000,000. On March 21, forty-seven persons were killed in the wreck of a Rock Island passenger train near Green Mountain.

**OTHER EVENTS.** On July 20, Governor Carroll was indicted for criminal libel as an outgrowth of the grand jury investigation of the State Industrial School for Girls. The governor charged that John Cownie as a member of the State Board of Control had sold diseased cattle belonging to a State institution in the markets at Omaha, and that he had purchased goods for State institutions without first being requested to do so by the proper authorities.

**STATE OFFICERS:** Governor, B. F. Carroll; Lieutenant-Governor, George W. Clarke; Secretary of State, W. C. Hayward; Treasurer, W. W. Morrow; Auditor, J. L. Bleakly; Attorney-General, George Kosson; Superintendent of Education, A. M. Devoe; Adjutant-General, Guy E. Logan—all Republicans.

**SUPREME COURT.** Chief Justice, John C. Sherwin, Rep.; Judges, Scott M. Ladd, Rep.; Emlin McClain, Rep.; William D. Evans, Rep.; Horace E. Deemer, Rep.; S. M. Weaver, Rep.; Clerk, Burgess W. Garrett, Rep.

**STATE LEGISLATURE, 1911.** Republicans, Senate, 34; House, 70; joint ballot, 104. Democrats, Senate, 16; House, 38; joint ballot, 54. Republican majority, Senate, 18; House, 32; joint ballot, 50.

**IOWA, STATE UNIVERSITY OF.** An institution of higher learning at Iowa City, founded in 1847. There were enrolled in the several departments of the University in 1909-10 2352 students. The faculty in 1910-11 numbered 165. Among the notable changes in the faculty during the year were the following: Professor Samuel Hays of the college of law retired from the staff of instruction and Professor Percy Bordwell of the University of Missouri succeeded him; Dr. W. L. Pierring, professor of theory and practice, and clinical medicine, and vice-dean of the college of medicine, resigned and was succeeded by Dr. Campbell Howard of McGill University, who was made professor of internal medicine and head of the department. Several other changes were made in the department of medicine. The productive funds of the University amounted in 1909-10 to \$145,571, and the income was \$579,093. The president is George E. MacLean, LL.D.

**IRELAND.** See GREAT BRITAIN.

**IRISH LAND LAW.** See GREAT BRITAIN. *History.*

**IRIDIUM.** See ATOMIC WEIGHTS.

**IRON,** See ATOMIC WEIGHTS.

**IRON AND STEEL.** The year 1910 was on the whole an unfavorable one in the iron and steel industries. This was due chiefly to the too rapid recovery in 1909 from the panic and depression of the years previous. This resulted in an overproduction which affected the trade during the year. There was a very large production and also a very large consumption. The latter, however, did not come up to what was expected and the result was large stocks of iron ore on hand.

**IRON ORE.** The production of iron ore in 1910 was slightly greater than that of 1909. It was anticipated that the increase would be much larger, but these hopes were not realized owing to the declining activity of the furnaces in the latter months of the year. The Lake Superior iron ores which furnish about 80 per cent. of the entire output, showed an increased production of nearly 900,000 tons over the production of 1909. The total production from the Lake Superior mines, according to statistics compiled by the *Iron Trade Review*, amounted to 43,470,206 tons in 1910 as compared with 42,586,869 tons in 1909. In the accompanying table, taken from the *Engineering and Mining Journal*, are estimated the production and consumption of iron ore in 1909-10:

	1909.	1910.	Changes.
Lake Superior....	42,586,869	43,470,206 I.	883,337
Southern States..	7,350,000	7,500,000 I.	150,000
Other States.....	3,150,000	3,325,000 I.	175,000
Total prod'n....	53,086,869	54,295,206 I.	1,208,337
Add imports.....	1,696,411	2,670,000 I.	973,589
Total supply....	54,783,280	56,965,206 I.	2,181,926
Deduct exports...	455,932	711,000 I.	255,068
Deduct increase in stock.....	521,000	950,000 I.	429,000
App. consump....	53,807,348	55,304,206 I.	1,497,858

**Pig Iron.** The production of pig iron in 1910 is estimated by the *Engineering and Mining Journal* at 27,295,592 tons as compared with 25,795,471 tons in 1909. The production was highest in the early part of the year, and following this the rate fell off from month to month, especially during the latter half of the year. In spite of this, however, the production shows the highest point ever reached. The pig iron produced in 1910 was divided into the following classes: Foundry and forge, 6,161,021 tons; Bessemer, 11,482,948 tons; basic, 9,007,200 tons; charcoal, 403,898 tons; spiegel and ferro, 240,525 tons. The approximate consumption of pig iron in 1910 was 25,712,592 tons, which is approximately 639 pounds per capita, a decrease of 4 pounds as compared with 1909.

**STEEL.** According to estimates based on the consumption of pig iron, the total steel output for 1910 was approximately 24,750,000 tons, of which 9,650,000 tons were Bessemer, 14,950,000 tons open-hearth, and 150,000 tons crucible and special steels. The business in structural steel was large and there was also a heavy demand for bars and plates, while the sales of pipe, wire, nails, and other construction materials were in large quantities. During the second half of the year railroad buying was light. The United States Steel Corporation made about 60 per cent. of the finished steel during the year.

**IMPORTS AND EXPORTS.** The exports and imports of iron and steel into the United States for the calendar years 1909 and 1910 are indicated in the table below, compiled by the Bureau of Statistics of the Department of Commerce and Labor:

	1909.	1910.	Changes.
Exports ....	\$157,674,894	\$201,271,903	I. 43,597,509
Imports ....	80,571,542	47,115,112	I. 16,543,570
Ex., exp....	\$127,102,852	\$154,156,791	I. \$27,053,939

The exports of iron ore in the calendar year 1910 were 644,875 tons and in 1909 they were 455,934 tons, an increase of 188,941 tons. The imports of iron ore were 694,957 in 1909 and 2,591,031 in 1910, an increase of 896,074 tons.

**WORLD'S PRODUCTION.** According to returns of the British Board of Trade, published in *Engineering*, the world's production of iron ore in 1909 amounted to 133 million tons. Of the ten principal producing countries the United States, with an output of 53 million tons, and France, with 12¼ million tons, alone exceeded their outputs of 1907. On the other hand, the United Kingdom, with an annual output of about 15 million tons, fell in 1909 even below the amount turned out in the bad year 1908, but the fluctuations were, proportionately, not so great for this country as for some others. In Spain the output likewise fell, being almost three-quarters of a million below the 1907, and also below the 1908 figure. Sweden also showed a falling off, but this was mainly due to the great strike, which dislocated all industrial conditions for some time in that country in 1909. The greatest ore-producing country is, of course, the United States, but the most active is Sweden, which has an output of over 0.82 ton per head of population when normal labor conditions prevail, against 0.60 ton per head for the United States. In Germany the production is about two-fifths of a ton per head, and in the United

Kingdom about 0.33 ton. After Sweden and the United States, Spain produces most ore per head of population—viz., nearly half a ton—although, excepting some produced in southern districts, the greater part of the output is confined to the three extreme northern provinces of Vizcaya, Santander, and Oviedo. Generally speaking, of course, the ore-producing districts cover comparatively small areas in the several countries. Of the output of the United States, for instance, about four-fifths come from Michigan and Minnesota. Among the less important countries, the outputs of Algeria and Cuba each amount to over 900,000 tons annually, and of Newfoundland to little short of that amount. The latter country was one of the few recording exceptional outputs in the poor year 1908; it then produced 964,000 tons, or about 80,000 tons more than in either 1907 or 1909.

The amount of pig iron produced in 1909 was probably about equal to that turned out in 1907—viz., 60 million tons, some 12 millions more than in the intervening year. The United States, Germany, and the United Kingdom account for four-fifths of the world's output. The United States produces about 0.3 ton per head of population, the United Kingdom and Germany each about 0.2 of a ton per head, while the consumption of pig iron in these countries is roughly of the same proportions.

The figures for steel production show great similarity to, though, of course, a slight reduction from, the figures for the output of pig iron in the several countries. The United States heads the list with nearly 24 million tons of steel. That country produced rather less than 26 million tons of pig iron in the same year. Germany had an output in 1909 of 11,856,000 tons of steel, while its output of pig iron was just under 12¼ million tons. In like manner, the United Kingdom is credited with 6.6 million tons of steel and 9.5 million of pig, this larger difference being accounted for, as pointed out above, by the greater share of this country in the total exports of pig. The United States is becoming increasingly an open-hearth country, the output of this class of steel being about 3 million tons greater in 1909 than in 1907. Open-hearth basic is produced there to an extent of thirteen times the open-hearth acid output. All the Bessemer steel produced in the United States is acid, and amounts to 9.3 million tons. Thus, while, in the United Kingdom, most of the steel is produced by the acid process, either open-hearth or Bessemer, in Germany by far the greater part of the output is basic, by one or the other of the two processes, and in the United States most of the open-hearth steel is basic and all the Bessemer is acid.

For chemistry related to Iron and Steel, see **CHEMISTRY, INDUSTRIAL.** See also **STRIKES AND LOCKOUTS.**

**IRON CORROSION.** See **CHEMISTRY, INDUSTRIAL.**

**IRON ORE BRIQUETTES.** See **CHEMISTRY.**

**IRREDENTISM,** See **AUSTRIA-HUNGARY, History.**

**IRRIGATION.** The year 1910 was one of unprecedented activity in the construction of irrigation works throughout the world. This activity is undoubtedly due in a large measure to the high prices of agricultural products, making it practicable to undertake the expense

necessary for the building of irrigation works. The greatest activity in the construction of new works has been in the United States, Mexico, Argentina, Australia, and Turkey, although there have been extensions of the systems already built in India and Egypt, and the various South American republics are giving considerable attention to irrigation.

**UNITED STATES.** In the United States most of the irrigation works now in operation have been built by private enterprise under varying degrees of State supervision, but most of the development now taking place is under Federal legislation—the Carey Act (Act of August 18, 1894) and the Reclamation Act (Act of June 17, 1902). There is also large development under State irrigation district laws, under which the cost of the works is taxed against the lands to be served by them.

**APPLICATIONS UNDER THE CAREY ACT.** The total area applied for by the arid States under the Carey Act up to June 3, 1910, was 6,587,508.92 acres. Applications for 2,958,985.83 acres of this were approved, for 955,272.42 acres were rejected or relinquished, and the balance are pending. Applications for nearly half the entire area applied for were made during the last fiscal year, the area being 2,765,946.47 acres which accounts for the large number of applications pending on July 1, 1910. This land is not reclaimed by the States directly, but through construction companies, which contract with the States to build the works according to plans approved by the States and sell them to the purchasers of the segregated lands at prices and terms agreed upon between the States and the construction companies. The States sell the lands at 50 cents per acre, but only to persons who have contracted with the construction companies for the purchase of an interest in the works. The areas applied for during the fiscal year ended June 30, 1910, by the several States, were as follows:

	Acres		Acres
Colorado ....	607,802.28	New Mexico..	20,164.68
Idaho .....	1,337,741.88	Oregon .....	132,884.22
Montana .....	170,997.91	Utah .....	81,918.38
Nevada .....	84,795.48	Wyoming ...	329,641.64

**PROGRESS OF RECLAMATION WORK.** In 1910 the United States Senate investigated the work done under the Reclamation Act. Its committee reported that so many projects had been begun that the fund available was not sufficient to complete these works soon enough to prevent injustice to settlers who had gone into the lands to be served with the expectation that the works would be built promptly, and recommended the issuing of bonds in the sum of \$20,000,000, the proceeds from which should be devoted to the completion of works already begun. This bond issue was authorized by Congress, which provided also for the appointment of a commission of army engineers to examine the incomplete works and determine which projects should be completed under this bond issue. This committee has reported and apportioned the funds among the incomplete projects. The condition of the Reclamation fund on June 30, 1910, leaving this bond issue out of account, was as follows:

Estl. total receipts to June 30, 1910....	\$66,866,638.50
Net expenditures to June 30, 1910....	53,781,302.88

The following statement of the progress of the works undertaken is compiled from the same report and from a statement supplied by the statistician of the Reclamation Service:

#### CONDITION OF UNITED STATES RECLAMATION PROJECTS, JUNE 30, 1910:

Estimated total cost of all projects.....	\$139,000,000
Total area to be irrigated—acres.....	3,151,983
Cost per acre .....	\$22 to \$93
Area of land for which water could be supplied in 1910—acres.....	876,684
Area actually irrigated in 1910—acres..	535,355

This table shows an increase for the fiscal year ending June 30, 1910, of 108,728 acres in the area which could have been supplied with water, and 110,806 acres in the area which was actually irrigated by the works under the control of the Reclamation Service. The estimated average cost per acre for all land included in the projects on June 30, 1909, was about \$30, while on June 30, 1910, it had increased to about \$44.

The area being reclaimed by irrigation districts is large, but figures are not available. The States of Montana and Wyoming and the Territory of New Mexico passed irrigation district laws in 1909, and districts have been formed in each. Several new districts have been formed in Colorado and Idaho also. It is probable that the total area now being reclaimed under district laws in the arid States is not much less than that being reclaimed under the Reclamation Act or the Carey Act, those two being approximately equal.

There are a great many private enterprises also, but no figures as to area are available. In the lower Mississippi Valley the ravages of the cotton boll weevil have caused many planters to abandon that crop and take up the growing of rice under irrigation. This condition exists in Arkansas, Louisiana, and Mississippi.

**MEXICO.** In addition to the creation of a bank for loaning funds for the construction of irrigation works, under the law of June 17, 1908, the Mexican government has within the last year undertaken the extension of irrigation by direct grants of funds and by Federal construction. Numerous grants of lands have been made to the Mormon Church, which is building irrigation works and colonizing the lands reclaimed with members of that church from the United States. The Federal government is making preliminary investigations for a large project in the Nazas River Valley. It involves the storage of the waters of that stream in a reservoir having a capacity of more than 1,000,000 acre-feet, the preliminary estimate of the cost being \$6,000,000 gold. A company owning 2,000,000 acres in Tamaulipas, bordering on the Rio Grande and the San Juan River, has received a subsidy of \$6,000,000 gold from the Mexican government. Under the terms of the concession the company must irrigate a tract of 250,000 acres along the Rio Grande, and later a tract of 350,000 acres along the San Juan; must supply each year 30 inches of water to the land irrigated, and must within the next five years place 12,000 families on the land. Another concession provides for a grant of \$3,000,000 and the colonization of 1,500,000 acres.

**ARGENTINE** The Argentine government has entered upon the promotion of irrigation works on a large scale. In the latter part of the year 1909 the government made an appropriation of

\$2,000,000 gold to a project in the valley of the Rio Negro. It is estimated that 2,470,000 acres can be reclaimed in that valley. On March 17, 1910, the President of the Republic laid the foundation stone of a dam on the river Neuquén, which is to divert the water of that stream into an old lake bed, having a storage capacity of 4,000,000 acre-feet. This project is to provide water for 1,235,522 acres. The Ministries of Agriculture and Public Works have appointed a commission to investigate the needs of the country and decide what additional works are needed most urgently.

**WEST INDIES.** The Porto Rican government has begun construction on the system of irrigation works provided for by the bond issue of \$4,000,000 voted in 1909; the Dominican government has appropriated \$500,000 to the irrigation of a part of a tract of 400 square miles at the mouth of the Yaque del Norte, near the port of Monte Christi; the Haitian government has appropriated \$200,000 American gold for the irrigation of the Cul de Sac plains; and the Cuban government is considering the feasibility of providing irrigation for tobacco growers who have suffered from drought for several years past.

**AUSTRALIA.** The state of Victoria has spent \$12,500,000 on irrigation works, covering about 1,000,000 acres, of which 350,000 are irrigated. During the year 1910 the state has been making special efforts to get settlers for the balance of this land. It has purchased large holdings for the purpose of subdividing them into small holdings and reselling them to settlers who will use water, at prices ranging from \$30 to \$100 per acre. A commission was sent to Europe and America to obtain settlers, the inducements offered being advances of a part of the passage money for colonists, advances for buildings and equipment, and 31½ years' time for payment for land and advances, with 4.5 per cent. interest on deferred payments. This commission is said to have been very successful. The state of New South Wales is engaged in the building of large works, but is not yet ready to supply water for irrigation. The Barren Jack reservoir now under construction by the state, at a cost of \$8,000,000, is expected to benefit 1,500,000 acres. South Australia is engaged in similar work on a smaller scale.

**TURKEY.** Elaborate plans for the reclamation of the valleys of the Tigris and Euphrates have been made by the Turkish government, the whole scheme involving the expenditure of some \$80,000,000. The work has not yet been provided for as a whole, but small parts of it have been in progress during 1910. Works for the drainage and irrigation of the Plain of Konia are being built, plans for irrigating the Plain of Adana have been approved, and other projects are being worked out.

**EGYPT.** The raising of the Assuan Dam begun in 1907 was continued during 1910. It is expected that this work will be completed in 1912, and that it will provide for the conversion of large areas from flood to perennial irrigation, and reclaim 1,000,000 acres of new land.

**OTHER COUNTRIES.** There is considerable development in other countries, but nowhere on a large scale. The Dutch are building works in Java, the Japanese in Formosa, the British in South Africa, and the Turks in various parts of Asiatic Turkey. The high prices of agri-

cultural products make irrigation possible in many sections where the cost would be prohibitive under lower prices.

**ISACHSEN, DUNNAB.** See **POLAR RESEARCH.**

**ISTHMIAN CANAL COMMISSION.** See **PANAMA CANAL.**

**ISTHMIAN CANAL ZONE.** See **PANAMA CANAL.**

**ISVOLSKY, M.** See **AUSTRIA-HUNGARY, History.**

**ITALIAN ARCHITECTURE.** See **ARCHITECTURE.**

**ITALIAN EXPOSITIONS.** See **EXPOSITIONS.**

**ITALIAN SOMALILAND.** An Italian protectorate on the eastern coast of Africa, composed of the sultanate of the Mijertins (Osman Mahamud), the territory of the Nogal, the sultanate of Obbia (Jusuf Ali), and the colony of Benadir. Area, estimated at 100,000 square miles; population, at about 400,000. Mogadisho (10,000 inhabitants), in Benadir, is the headquarters of the civil governor. The people raise cattle, sheep, and camels. Imports (1907-8), 2,260,944 lire (yarn, timber, petroleum, rice, sugar, cottons); exports, 1,299,201 (butter, timber, hides, durra). Total revenue and expenditure (budget of 1909-10), 672,000 lire (state subvention, 2,260,000). Governor (1910), Signor de Martino. A royal decree of January 28, 1909, provides for the minting of 1-, 2-, and 4-bese bronze coins for Italian Somaliland.

**ITALIAN UNIVERSITY QUESTION.** See **AUSTRIA-HUNGARY, History.**

**ITALY, EXCAVATIONS IN.** See **ARCHÆOLOGY.**

**ITALY.** A constitutional monarchy of southern Europe, including the Italian Peninsula, the islands of Sicily, Sardinia, and Elba, and some 66 minor islands. Capital, Rome.

**AREA AND POPULATION.** Area, as estimated by the *Almanach de Gotha*, 286,682 square kilometres, or 110,690 square miles; by the Italian Survey Department, 110,659 square miles; the sum of the areas of provinces and compartimenti, as reckoned, some by the Survey Department, others by the Military Geographical Institute and by the General Statistical Department, amounts to 110,550 square miles. Population (1901), 32,475,253; estimated January 1, 1909, 34,269,764. There is a large settled and floating foreign population. Marriages (1909), 265,042; births, 1,164,251; deaths, 786,988, including still-births, 50,267. Emigrants in 1908, 486,674 (United States, 56,098); 1909, 625,437 (U. S., 221,694). Rome had (1909) 575,000 inhabitants; other towns are given according to the census of 1901, with subsequent territorial changes to December, 1908, taken into account, as follows: Naples, 596,000; Milan, 584,000; Turin, 371,000; Palermo, 319,000; Genoa, 275,000; Florence, 227,000; Bologna, 165,000; Venice, 160,000; Messina, 149,778.

**EDUCATION.** Primary education is secular, free, and compulsory in the lower of two grades (ages 6-9), where only lower-grade schools exist, but compulsory also in the higher grade (9-12), where schools have been provided. A much-needed stimulus has been given by the law of July, 1904, imposing special disabilities on the illiterate, who prior to that date numbered 49 per cent. of the population over 20 years of age. Secondary (classical) education is supplied in the lyceums and gymnasia, mainly

state-maintained. Special schools, state-supported or -aided, have increased in numbers and attendance. There are seventeen state and four free universities, with an aggregate attendance (1908-9) of 23,644 students. No statistics for the primary schools are available later than 1901-2.

**AGRICULTURE.** Of the total area (28,668,221 hectares), 20,248,000 hectares (70.6 per cent.) are productive. The area under principal crops in 1908, and the production in 1908 and 1909, are seen below (1909 figures subject to revision):

Crops	Acres 1908	Bushels 1908	Bushels 1909
Wheat	12,616,760	147,534,000	194,000,000
Corn	4,443,530	92,988,500	94,821,000
Rice	372,970	25,830,750	546,500†
Vines	9,284,730	51,748,760*	41,398,000*
Olives	2,714,530	2,857,000†	632,000†

\* Hectoliters (of 22 gallons) of wine. † Hectoliters of olive oil. ‡ Tons.

Yield of grapes in 1909, 10,853,000 tons. Area under tobacco (1908), 13,436 acres; production (1907), 6803 metric tons. Hemp is raised. Silk culture is carried on; average annual production of silk cocoons, 55,527,000 kilograms; of silk, 5,784,000 kilograms.

About 4,093,000 hectares are under forest. Yield (1907), 1,129,000 cubic metres of timber (36,018,000 lire), 4,116,000 of firewood (49,092,000 lire), 5,064,000 quintals of charcoal (39,421,000 lire); total value, 124,531,000 lire. Value of secondary products, about 32,000,000 lire annually. The government has been instrumental in the replanting, from 1867 to the end of 1908, of 29,498 hectares.

**MINING, MANUFACTURES, ETC.** There were 796 mines in operation in 1908, employing 54,093 persons. The production is given as follows:

	Metric tons	Lire
Sulphur	2,847,943	32,095,016
Zinc	152,254	14,483,298
Iron	539,120	8,352,153
Lead	46,649	6,681,765
Coal, etc.	480,029	4,231,634
Mercury	32,534	2,522,181
Iron pyrites, etc.	131,721	2,369,236
Copper	106,629	2,252,637
Asphalt, etc.	124,694	1,892,044
Boric acid	2,520	907,200
Argent. antimony	2,821	280,584
Gold	14,671	241,115
Iron manganese	14,671	179,744
Manganese	2,750	91,090
Silver	53	67,700
Lead and zinc	260	27,600
Quarries		33,804,776
Kilns		152,684,588

Sugar factories (1907-8), 32; output, 130,965 tons. Net profit from the state salt monopoly, (1908-9), 66,433,500 lire; from the state tobacco monopoly, 207,153,316. Value of industrial chemical products (1908), 138,638,000 lire. Value of fisheries products (1907), 18,504,000 lire (tunny-fish, 2,365,000 lire; coral, 1,182,000 lire).

**COMMERCE.** The trade is given below for three years in lire:

	1907	1908	1909
Imps. mdse.	2,880,669,312	2,913,274,509	3,111,710,447
Prec. mts.	168,143,500	28,052,400	18,000,800
Total	3,048,812,812	2,941,326,909	3,121,711,247
Exps. mdse.	1,948,868,310	1,729,263,357	1,866,889,562
Prec. mts.	5,810,900	21,012,200	54,067,700
Total	1,954,679,210	1,750,275,557	1,920,957,262

Details of the special trade for 1909 are given in thousands of lire:

Imps.	1000 lire	Exps.	1000 lire
Cereals	368,200	Silk	499,000
Coal	260,500	Cottons	112,900
Cotton	243,700	Fruits	91,100
Silk	180,400	Silks	88,000
Machines	175,300	Chem. prods.	59,600
Chem. prods.	154,000	Hemp	58,400
Timber	151,800	Skins	49,200
Iron	132,500	Cheese	44,800
Skins	100,100	Wine	44,600
Wool	90,700	Eggs	43,400
Fish	86,000	Citrus fruits	35,100
Animals	84,500	Olive oil	34,100
Iron mfrs.	67,900	Sulphur	33,700
Instruments	58,100	Wood. wares.	32,800
Woolens	52,800	Marble, etc.	26,700
Copper, etc.	44,700	Vegetables	24,700
Silks	43,200	Pastes	24,100

The trade with principal countries of origin and destination is given in thousands of lire:

	Imports		Exports	
	1908	1909	1908	1909
Germany .....	520,975	503,464	245,430	307,202
Great Britain.....	500,893	490,643	181,854	167,929
United States.....	404,994	390,193	202,828	202,374
France .....	276,265	329,106	203,801	198,717
Aus.-Hun. ....	300,682	309,303	144,777	155,087
Russia .....	127,711	209,600	11,850	33,597
Argentina .....	65,677	120,901	149,765	150,849
Br. India *.....	107,649	97,466	18,944	23,008
Switzerland .....	80,468	80,498	297,400	216,753
Belgium .....	75,284	73,345	36,489	38,781
Turkey .....	54,784	71,428	67,167	79,063
China † .....	72,179	60,717	2,444	5,065
Rumania .....	34,673	55,180	4,126	8,518
Spain .....	38,043	32,984	11,152	10,947
Netherlands .....	24,929	29,770	16,808	15,069
Tunis .....	28,583	29,094	7,810	6,975

\* And Ceylon. † And Hongkong.

Vessels entered (1908), 140,102, of 45,092,022 tons (Italian, 127,047, of 26,421,808); cleared, 139,985, of 45,028,061 tons (Italian, 127,000, of 26,425,544. Merchant marine (1908): 4874 sailing vessels, of 468,674 tons; steamers, 589, of 526,586.

**COMMUNICATIONS.** Total length of railways, June 30, 1909, 10,445 miles (state, 7992). Telegraph lines (June 30, 1907), 31,150 miles; wires, 137,900; offices, 7066 (5064 state, 2002 railway). Telephone lines, 11,993 miles; wires, 95,450. Post-offices (1907), 9772.

**ARMY.** Military service in Italy is universal and compulsory, but on account of emigration and other causes the quota furnished annually proves insufficient and by a law of 1908 the number of exemptions was reduced and two years' service was introduced in the infantry. The organization of the active army as provided by law consisted of 96 regiments of line infantry, making, with 12 regiments of bersaglieri, 318 battalions, and 26 battalions of Alpine troops grouped in 8 regiments. The organization further provided for 145 squadrons of cavalry formed in 24 regiments, 186 six-gun field batteries formed in 24 regiments, but with four years only on a peace basis, one regiment of six batteries of horse artillery, two regiments of 24 batteries of mountain artillery, 3 regiments of coast artillery and a brigade in Sardinia, 2 regiments of fortress artillery and 5 of engineers. The army is organized into 12 army corps, in each of which there are 2 infantry divisions, except in the district of Rome, where there are 3.

In 1910 the total war strength of the kingdom was given as follows:

Active army officers and men with the colors .....	248,111
On unlimited leave .....	486,290
Mobile militia .....	320,170
Territorial militia .....	2,275,631
Total on a war footing .....	3,330,202

Owing to the fact that the territorial militia is practically untrained, these figures for purposes of comparison with those of other Powers lose much of their impressiveness.

The total expenditures for war provided by the budget of 1910-11 were 306,728,900 lire for the ordinary expenses and 50,217,500 lire for the extraordinary expenses, or a total of 356,946,400 lire. There was an increase of about 6,600,000 lire in the ordinary budget over the figures for 1909-10, caused by the organization of new units, the promotion of officers, and increased scope of manœuvres, instruction and other activities. The increase in the extraordinary budget over 1909-10, about 9,000,000 francs, was due to providing armament for the fortifications, for the purchase of siege guns and field artillery, for the construction of new fortifications, for providing for mobilization and for small arms and ammunition. The effective strength of the army for 1910-11 was fixed by the budget at 225,000 men, or 85 per cent. of the organized strength, which was estimated at 278,466. The mean peace effective in 1910 was stated at about 13,600 officers and 236,000 men.

On July 17, 1910, legislation was passed relative to the reorganization of the army. The first of these laws provided that the Italian army shall consist of a general staff, with a chief of staff and four generals designated for eventual command of the army, twelve generals commanding the 12 army corps, into which the forces are divided, twenty-five generals commanding military territorial divisions and three generals in command of divisions of cavalry, and other general officers. Two commissions are created, one a council of defences and the other a council for the army. There was also provided a staff corps and divisions of the arms of the service. The infantry command established embraced forty-eight brigades of infantry, three Alpine brigades, two regiments of grenadiers, ninety-four regiments of the line, twelve regiments of bersaglieri and eight Alpine regiments.

The cavalry was to consist of an inspector-general of cavalry, three divisions of cavalry, divided into eight brigades and made up of twenty-nine regiments.

The artillery is reorganized with an inspector-general of artillery and an inspector of ordnance construction, nine generals commanding field artillery and four generals commanding fortress artillery. There were to be thirteen artillery commands. There were to be thirty-six regiments of field artillery, one regiment of horse artillery, two regiments of mountain artillery, two regiments of siege artillery, ten regiments of fortress artillery.

The engineering troops were to be under the inspector-general of engineers and two commanding generals and five generals in command of territorial divisions. Six regiments were divided into twenty-four battalions, sixty-nine

companies and six depots. One battalion of technical troops (five companies) and ten companies of train and a new commissary corps, consisting of various officers and twelve companies of subsistence troops, were also established by law. There was also to be a service corps.

NAVY. In 1910, the larger vessels of the effective navy were: Battleships, 11 (6 first-class), detailed as follows: 4 (1906-9), of 12,625 tons each; 2 (1904), of 13,426; 2 (1901-2), of 9800; 3 (1893-5), of 13,298. Armored cruisers, 10 (7 first-class): 4 (1908-10) (the *San Giorgio* and the *San Marco* were both completed in 1910), of 9832 tons each; 3 (1900-4), of 7400; 2 (1897-8), of 6500; 1 (1895), of 4583. There were building, in 1910, 4 first-class battleships; 3 of 21,500 tons each, and 1 of 19,000. The number of effective warships of 1000 tons and over, and of torpedo craft of 50 tons and over, built and building (actually begun) in 1910, was 171, of 327,059 aggregate tons displacement, detailed as follows: 13 battleships (10,000 tons and over), aggregating 193,600 tons; 10 armored cruisers, 78,520; 3 cruisers (6000 to 3000), 9750; 7 cruisers (3000 to 1000 tons), 14,720; 33 torpedo-boat destroyers, 13,997; 88 torpedo boats, 12,250; 17 submarines, 4222. The naval appropriation for the fiscal year ended June 30, 1911, was \$35,719,861; 1910, \$31,770,393; 1909, \$30,453,607; and the total naval expenditure, from 1900 to June 30, 1911, was placed at \$294,869,961. Personnel, 30,561 officers and men. See BATTLESHIPS, and NAVAL PROGRESS.

FINANCE. The lire (worth 10.3 cents) is the unit of value. Revenue and expenditure for three fiscal years are given below in lire:

	1906-7	1907-8	1908-9
Rev...	2,256,039,985	2,320,597,699	584,696,913
Exp.	2,154,190,700	2,253,720,348	2,502,815,599

Estimates for 1909-10, 2,492,927,020 and 2,444,459,931 lire. The details of the budget for 1910-11 are given as follows (in thousands of lire):

Rev.	1000 l.	Expend.	100 l.
St. prop.....	66,511	Treasury .....	717,810
Direct taxes...	459,090	Finance .....	310,244
Transactions ..	291,500	War .....	314,013
Customs .....	304,400	Marine .....	186,173
Excise .....	163,900	Interior .....	116,850
Octrol .....	53,017	Posts, Tels....	113,311
Tobacco .....	294,050	Instruction ....	97,836
Lottery .....	89,000	Justice, etc....	52,574
Salt .....	84,500	Pub. Works....	50,398
Quinine .....	2,500	For. Affairs....	21,720
Pub. service....	165,613	Agricul., etc...	20,371
Repayments ..	155,337	Total ord....	2,001,300
Special .....	57,060	Extraord. ...	414,447
Various .....	29,968		
Total ord....	2,216,446	Total .....	2,415,747
Extraord. ...	246,012		
Total .....	2,462,458		

Public debt, July 1, 1910, 500,409,629 lire; amortization, 3,095,648.

There is no national bank. The Banca d'Italia, the Banca di Napoli, and the Banca di Sicilia are the only banks of issue; their aggregate reserves (December 31, 1908) amounted to 1,477,168,073 lire. Postal savings banks (December 31, 1908), 8804, with 4,981,920 depositors, and 1,506,781,795 lire deposits; other savings banks, 207, with 2,141,457 depositors, and 2,165,377,327 lire deposits.

**GOVERNMENT.** The king is the executive, acting through a responsible council of eleven ministers. The legislative authority rests conjointly in the king and a parliament consisting of a senate (318 members) and a representative chamber of deputies (508). The reigning king (1910), Victor Emanuel III, was born November 11, 1869; was married (1896) to Princess Elena of Montenegro; succeeded his father, July 29, 1900. Heir-apparent, Prince Umberto, born September 15, 1904. The Ministry in 1910 was composed as follows: Premier and Minister of the Interior, Luigi Luzzatti; Foreign Affairs, A. Marchese di San Giuliano; Justice and Fine Arts, C. Fani; Finance, L. Facta; Treasury, F. Tedesco; War, General Spingardi; Marine, Rear-Admiral P. Leonardi-Cattolica; Public Instruction, L. Credaro; Public Works, E. Sacchi; Agriculture, Industry, and Commerce, G. Raineri; Posts and Telegraphs, A. Ciuffelli.

**HISTORY.** After the resignation of the Giolitti Ministry on December 2, 1909, Baron Sonnino formed a new Cabinet from the Right, the Moderate Left and the Centre, retaining from the old Cabinet only General Spingardi, Minister of War. It proved to be short-lived. Discussion of the Shipping Subsidies bill was renewed on the meeting of the Chamber on February 10, 1910. As amended it provided for the payment of an annual subsidy for fifteen years to the "Italian Society for the carrying on of marine subsidized services," which comprised a group of five companies associated under that name. The majority of the Chamber soon showed their hostility to the measure and on March 21 the Sonnino Ministry resigned. Signor Luzzatti formed a new Ministry, which met the Chamber on April 28. His policy as announced on that date included the postponement of the marine conventions, the promise of fiscal reform and assistance to education, and an increased tax on tobacco. He also declared that the government would avoid all compromise with clericalism, though it would not approve any persecution of the Church. A temporary marine measure was introduced entrusting the services to a stock company and this was carried by a strong majority on May 29. During the last week in May the King and Queen visited Messina to inspect hospitals erected after the earthquake. A great disaster befell the island of Ischia on October 24, when a storm detached masses of earth and stones on the mountainsides and swept them down upon the houses and villages. The loss of life was placed at 300. The Socialist Congress of Milan, held in the latter part of October, showed a sharper division than ever between the two wings of the Italian party, the Revolutionists and the Reformists. The net result of the meeting has been to engender further hostility between the leaders. The Chamber of Deputies was re-opened on November 30. The chief measures promised were improvement of the status of post-office employees, entailing an additional expenditure of \$5,000,000. It was expected that the Electoral Reform measure would also be brought in. Much ill-feeling was caused among Catholics by the speech of Signor Nathan, the Syndic of Rome, on the fortieth anniversary of the entry into Rome on September 20, in which he attacked the doctrines and the policy of the Holy See. On September 23 a letter of the Pope was published protesting against Signor Nathan's language as blasphemous and offen-

sive and asking the Catholics to take note of this affront.

**IVORY COAST, THE.** A French colony in French West Africa (q. v.). Area 315,000 kilometres (125,538 square miles). Estimated population (1908), 1,141,743. Capital, Bingerville. The government schools (1908) numbered 22, with 658 pupils; private, 2, with 30; Mussulman, 2, with 20. The principal products and their export values in 1908 are as follows: rubber, 3,753,593 francs; palm oil, 3,000,366; cabinet woods, 2,793,198; palm kernels, 1,031,445; elephants' tusks, 136,035. Imports and exports (1908 totals), 14,223,203 and 10,854,190 francs respectively. Vessels entered, 1091, of 42,294 tons; cleared, 2181, of 71,101. Railway lines open, 162 kilometres. Length of telegraph lines, 2850 kilometres; telephone, 25. Number of post and telegraph offices, 40. Revenue in 1908, 4,321,373 francs (direct taxes, 1,713,495 francs; government subvention, 1,250,000; Grand-Bassam wharf receipts, 349,529; patents, 327,378); expenditures, 4,258,030 francs. The colony is administered by a lieutenant-governor (1910, G. Angoulvant), under the direction of the governor-general of French West Africa.

**JACKS, L. P.** See *LITERATURE, ENGLISH AND AMERICAN, Essays and Literary Criticism.*

**JAMAICA.** An island of the West Indies, constituting with its dependencies a British colony. Area of the island, 4207 square miles. Population (1891), 639,491; estimated, March 31, 1909, 846,656. Births (1908-9), 31,785; deaths, 18,928; marriages, 3526; East India immigrants, 14,348. Capital, Kingston, with 46,542 inhabitants; Spanish Town has 5019. Public elementary schools (1908-9), 690, with 85,167 pupils; government training schools, 3, with 132 students; government grant, £47,962. There are also secondary, high, and industrial schools. Area under cultivation (1908), 843,997 acres (240,816 tilled lands, 603,181 pasture). Of the tilled lands, 28,241 acres were under sugar-cane, 25,082 under coffee, 59,779 under bananas; cocoanuts, 11,822; cacao, 9679; tobacco, 997; corn, 470; Guinea grass, 138,521; common pasture, 369,184; common pasture and pimento, 95,476. Imports and exports (fiscal year 1908-9), £2,420,335 and £2,268,253 respectively; for year ending December 31, 1909, £2,555,027 and £2,278,826. Total tonnage entered and cleared in 1908, 3,000,494. Length of railways (1909-10), 184 miles, government-owned; cost of construction to 1910, £2,539,930; receipts and expenditures for the year 1909-10, £163,847 and £110,564 respectively. Irrigation canals, 79 miles. Roads, 6296 miles. Telegraph lines, 943 miles; telephone, about 650. Total general revenue (1909-10), £992,977 (1908-9, £933,751); additional: £6646 special (including £3394 from general revenue); £148,543 parochial; £20,595 immigration revenues (including £2917 from general). Total general expenditure, £1,033,795 (£911,095 in 1908-9); additional: £6646 special; £156,300 parochial; immigration expenditure, £20,841.

Public debt (1910), £3,850,697. The Government Savings Bank had (March 31, 1909) 39,446 depositors, with deposits amounting to £390,389. The colony is administered by a governor (1910, Sir Sidney Olivier). Turks and Caicos Islands and Cayman Islands (qq. v.) and the Morant Cays and Pedro Cays are attached to Jamaica.

While many piles of ruins (from the earthquake and fire of January, 1907) are still to be seen, Kingston presents a much improved appearance. The insurance money (received only after a long fight to demonstrate the precedence of the fire is being rapidly spent on new buildings. See also CANADA, *Preference*.

**JAMES, E. E. C.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**JAMES, GRACE.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**JAMES, HENRY.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**JAMES, WILLIAM.** An American philosopher and psychologist, died August 26, 1910. He was born in New York City in 1842, son of Henry James, a well known theologian, and brother of Henry James, the novelist. At the age of thirteen he was taken abroad, where he remained three years studying under tutors and in schools in France and England. He then studied painting with William M. Hunt in Newport, R. I., for a short time, and afterwards spent a winter at the Academy of Geneva. In 1861 he entered the chemical department of the Lawrence Scientific School. He did not remain to take his degree, but in 1863 entered the Harvard Medical School, taking his degree six years later. While he was still a medical student he accompanied Professor Louis Agassiz's Thayer Expedition to Brazil in 1864 and in 1867 studied physiology in Berlin. In 1872 he became instructor in vertebrate anatomy and physiology at Harvard College. He turned his attention to philosophy and from 1800 to 1885 he was assistant professor of philosophy at Harvard and from 1885 to 1889 was professor of the same department. Again changing his branch from philosophy to psychology he was professor of the latter science at Harvard in 1889-97. He was again professor of philosophy from 1897 to 1907, when he retired as professor emeritus. In the period 1899-1901 he was appointed Gifford lecturer on natural history at the University of Edinburgh, and in 1908 the Hibbert lecturer on philosophy at Oxford. Professor James, although one of the most eminent scholars and scientists of his day, was perhaps even more essentially a man of letters. He was an ideal teacher and had a remarkable facility in communicating ideas for the purpose of instruction. His first standing was won as a psychologist when in 1890 appeared his large two-volume edition of the *Principles of Psychology*. This book at once took high rank among psychological works, not only on account of its scientific standard, but nearly as much from the clearness of its style, wherein it differed widely from most works on psychological subjects. The distinctive trait of his psychology was the remarkable union of the physiological and laboratory attitude with the introspective method. He was practically the first author using the English language to base his psychology on the biological method, with which he had become familiar as a medical student and teacher. The decade from 1890 to 1900 marked a decline of Professor James's direct interest in psychology. The Gifford lectures signalized the fruition of his psychological method in a definite philosophic attitude. The rest of his life was devoted to the elaboration of this philosophy, which he named "pragmatism" from the standpoint of method, and "radical empiricism" from the standpoint of substance of doctrine.

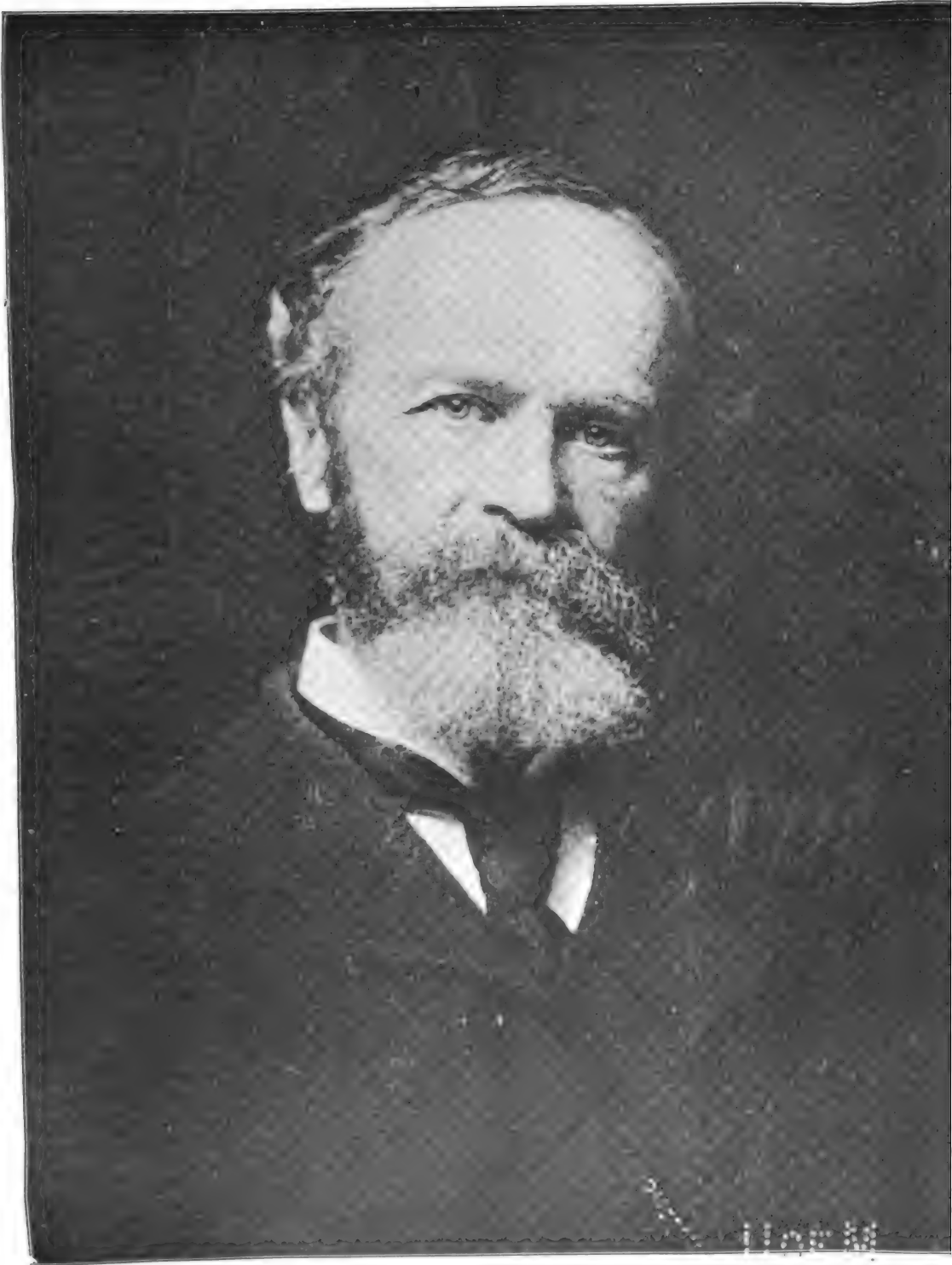
The germs of this philosophy are found in his psychology. Its main ideas were outlined in his volume on *The Will to Believe*, which contains essays of the late 80's and 90's. Professor James urged his philosophy of pragmatism as a middle way between natural science and the ideal interests of morals and religion. Professor James was probably the most widely known American scholar at the time of his death, and as a psychologist he was ranked among the very first. His doctrine of pragmatism was received with great opposition among the more conservative students of philosophy, but it does not lack warm defenders. He was a member of many learned societies, including the Institute of France, the Royal Prussian Academy of Science, the Royal Denmark Academy, the British Academy and the National Academy of Sciences. Honorary degrees were conferred upon him by the universities of Padua, Princeton, Edinburgh, Harvard, Oxford and Geneva. Among his published works are the following: *Principles of Psychology* (1890); *Psychology, a Briefer Course* (1892); *The Will to Believe, and Other Essays in Popular Philosophy* (1897); *Talks to Teachers on Psychology, and to Students on Life's Ideals* (1898); *Human Immortality, Two Supposed Objections to the Doctrine* (1899); *The Varieties of Religious Experience* (1902); *Pragmatism—a New Name for Some Old Ways of Thinking* (1907); *A Pluralistic Universe* (1908), and *The Meaning of Truth* (1909). See LITERATURE, ENGLISH AND AMERICAN.

**JANOWSKI, W.** See CHESS.

**JAPAN.** A constitutional empire consisting of Honshiu (the "mainland"), Kiushiu, Shikoku, Hokkaido, and many smaller islands off the eastern coast of Asia; together with Formosa (Taiwan), the southern half of Sakhalin (Karafuto), Korea (Chosen), and the lease-hold of Kwantung (Kwantung-shu) (qq. v.). Capital, Tokyo.

**AREA AND POPULATION.** The area of Japan proper is stated at 147,651 square miles (Honshiu, 87,485). The population, including Japanese abroad was 49,769,704 in 1903 (Honshiu, 35,460,542); estimated in 1910, 50,751,919. At the end of 1908 the reported number of Japanese in foreign countries was 326,161, of whom 219,106 were in the United States and its dependencies (especially Hawaii) and 98,001 in Korea (then classed as foreign). Foreigners in Japan proper on same date, 17,893, of whom 10,847 Chinese, 2401 English, and 1684 Americans. In 1907, there were 433,527 marriages, 1,621,973 births, and 1,024,286 deaths; in addition, 158,814 stillbirths (8.9 per cent.); illegitimate births, 147,558 (9.1 per cent.); excess of births over deaths, 597,687. The large annual increase of population in an already crowded territory in large part explains Japan's policy of expansion. But it is to be noted that the growth of urban population at the expense of rural has begun. Estimated population of the larger cities December 31, 1908: Tokyo, 2,186,079; Osaka, 1,226,500; Kyoto, 442,462; Yokohama, 394,303; Nagoya, 378,231; Kobe, 378,197; Nagasaki, 176,480.

**EDUCATION.** Elementary instruction is compulsory. In 1908 there were 27,125 elementary schools, with 122,038 teachers and 5,713,698 pupils; 288 middle schools, 5546 teachers, 111,967 pupils; 5382 special and technical schools, 8454 teachers and 283,204 students; 134 girls' high schools, 2072 teachers and 40,891 pupils;



WILLIAM JAMES

४७३

72 normal schools, 1175 teachers and 19,359 students; besides various other institutions, including several universities. The Imperial University of Tokyo in 1909 had about 5400 students; Kyoto, 1400; Tohoku, 694. Religious freedom prevails. The chief religious forms are Shintoism and Buddhism. In 1910 the number of shrines was reported at 153,726.

**AGRICULTURE.** There were reported under cultivation January 1, 1909, 5,262,867 cho; forests, 7,431,618; open field, 1,227,266 (one cho=2.45072 acres). Rice is the leading crop (2,922,973 cho in 1908); others of importance are tea, sugar, barley, rye, and wheat. The rice crop for 1910 was estimated at about 47,475,000 koku, as compared with 52,437,662 in 1909, 51,933,893 in 1908, and 41,466,422 in 1900 (one koku=about 5.11 Winchester bushels). The production of silk is very important; the output in 1908 was 3,530,171 koku of cocoons and 3,512,242 kwan of raw silk, against 3,456,967 and 3,236,692 respectively in 1907 (one kwan=8.28 lbs.). According to an official report in 1910, the yield of the chief agricultural products during the past three years averaged in annual value over 1,235,000,000 yen. Livestock in 1907: 1,495,252 horses, 1,237,161 cattle, 3949 sheep, 80,901 goats, and 317,640 swine.

**MINING.** The value of the mineral output in 1908 is stated at \$51,583,000 (\$53,412,800 in 1907). The more important minerals raised in 1908 were: coal, \$30,981,700; copper, \$11,201,900; petroleum, \$3,237,700; silver, \$2,132,800; gold, \$2,073,000.

**MANUFACTURES.** In recent years there has been a large development in manufactures, especially textiles and iron and steel. The values of woven piece goods produced in 1907 were: Silk, 90,701,894 yen; mixed silk and cotton, 20,329,200; cotton, 98,742,341 (57,745,068 in 1900); hemp, 4,090,000 yen; besides sashes and other articles, making a total of over 240,000,000 yen. In 1900, there was a domestic production of cotton yarn of 270,163,675 lbs., and an importation of 12,067,984 lbs.; in 1907, the production had increased to 394,202,183 lbs. and the importation decreased to 2,380,715 lbs. The cotton industry showed some falling off, however, in 1908, when the output of piece goods was valued at 88,105,814 yen and the production of cotton yarn amounted to 357,202,183 lbs. The production of woolen goods in 1908 was valued at 11,590,000 yen. Other manufactures, in 1907: Japanese paper, 19,506,013 yen; European paper, 12,940,658; oil, 10,943,560; leather, 8,968,946; lacquer ware, 7,561,084. In 1910 the largest paper mill in the Far East was completed at Tomakomai, Hokkaido.

**COMMERCE.** The values in yen of the imports and exports of merchandise and the import duties collected have been as follows:

	Imports	Exports	Duties
1872 .....	26,174,815	17,028,647	.....
1882 .....	29,446,634	37,721,751	.....
1892 .....	71,326,080	91,102,754	2,745,777
1902 .....	271,731,259	258,303,065	14,727,800
1905 .....	488,538,017	321,533,610	34,298,500
1906 .....	418,784,108	423,754,892	41,230,400
1907 .....	494,467,346	432,412,873	46,959,596
1908 .....	436,257,462	375,245,673	44,817,856
1909 .....	394,198,843	413,112,511	35,438,378

Not included in these figures is the movement of specie and bullion, which amounted in 1906 to 47,211,197 yen imports and 25,784,436 yen exports; in 1907, 8,256,503 and 18,759,285 re-

spectively; in 1908, 17,544,486 and 3,772,502; in 1909, 79,587,502 and 6,584,327. The percentage of dutiable imports in 1909 was about 56.2, as compared with 64.3 in 1908, 62.2 in 1907, 67.2 in 1906, 55.5 in 1902, 63.8 in 1897, and 90.0 in 1892. The average rate of duty in 1909 was 15.98 per cent., as compared with 15.93 in 1908, 9.75 in 1902, and 4.27 in 1892.

The values of the leading imports have been as follows, in yen:

	1907	1908	1909
<b>Cotton:</b>			
Raw .....	115,641,599	90,256,289	108,307,783
Cottons .....	15,540,000	16,675,000	12,686,000
Yarn .....	2,020,304	1,395,760	868,739
<b>Wool:</b>			
Raw .....	14,324,800	6,850,177	9,092,008
Woolens .....	12,303,887	8,564,077	9,080,018
Yarn .....	5,053,229	4,822,810	5,041,110
<b>Machinery, etc.</b>	46,938,283	28,239,600	
Iron and steel .....	42,947,107	37,264,061	26,945,876
Oil-cake .....	21,042,122	24,490,195	24,426,945
<b>Ammonium sulphate</b>	8,227,472	8,796,790	5,923,509
Phosphorites .....	3,900,251	3,350,958	2,220,161
Rice .....	30,931,058	22,688,539	13,585,817
Sugar .....	19,884,956	19,604,038	13,367,289
Soybeans .....	9,584,322	10,930,671	10,546,428
Wheat, flour .....	9,881,515	5,338,923	2,806,919
Cond. milk .....	2,062,211	2,389,296	2,342,082
Kerosene .....	14,324,800	15,103,200	11,657,299
Paper .....	8,502,448	6,379,530	8,714,114
Indigo .....	5,876,705	5,420,604	4,646,303
Anil. dyes .....	2,471,856	2,030,784	3,202,767
Tin plate .....	.....	2,513,260	3,277,803
Leather .....	3,833,620	2,876,267	2,817,292
Window glass .....	1,751,656	1,298,862	2,138,521

The values of the leading exports have been as follows, in yen:

	1907	1908	1909
<b>Silk:</b>			
Raw .....	116,888,627	108,609,052	124,243,239
Waste .....	6,243,305	7,872,465	6,928,607
Habutai* .....	.....	28,067,928	25,797,184
Kaiki* .....	.....	227,536	372,111
Hdkfs. ....	.....	3,905,593	3,816,104
<b>Cotton:</b>			
Yarn .....	30,342,913	20,723,904	31,656,770
Tissues .....	16,344,097	14,611,374	17,672,988
Underwear .....	3,709,928	3,105,796	3,733,900
Towels .....	.....	1,319,364	2,313,234
Copper† .....	29,262,693	21,255,013	21,071,383
Coal .....	19,052,886	18,233,980	17,297,139
Tea .....	12,618,244	11,153,379	13,156,539
Matches .....	9,446,532	9,468,602	11,625,185
Timber .....	13,334,811	8,822,497	6,154,894
Rice .....	3,664,344	3,910,243	5,867,290
Earthenware .....	7,216,034	5,078,222	5,257,832
Ref. sugar .....	2,591,667	3,454,150	5,082,617
Paper .....	5,294,397	4,783,671	4,961,273
Straw braids .....	3,905,538	3,179,890	4,634,261
Matting, etc. ....	5,746,279	5,765,053	4,602,024
Camphor .....	5,028,258	2,063,410	3,469,398
Sake .....	3,338,586	3,329,262	3,434,970
Cuttlefish .....	.....	1,788,301	2,264,026

\* Tissues; total, with handkerchiefs, in 1907, 34,646,757 yen.

† Ingot and slab.

The values, in thousands of yen, of imports and exports of merchandise by countries in 1908 and 1909, are shown in table at top of next column.

**SHIPPING.** In the over-sea trade there entered in 1909 at Japanese ports 12,330 vessels, of 19,794,451 tons, of which 8849 vessels (9,587,222 tons) were Japanese, 1912 (5,823,376 tons) British, 575 (1,639,940 tons) German, and 189 (1,355,001 tons) American. On January 1, 1910, the merchant marine consisted of 2360 steamers, of 1,193,098 tons, and 5880 sailing vessels, of 403,203 tons; in addition, there were small native craft to the number of 22,276, aggregating 301,312 tons. A law providing for ship subsidies went into effect January 1, 1910.

	Imports		Exports	
	1908	1909	1908	1909
Great Britain.....	107,796	86,277	25,522	27,092
Germany.....	46,179	40,217	7,976	7,955
France.....	5,246	5,558	33,746	41,520
Other Europe.....	16,502	16,071	16,748	19,577
British India.....	49,328	65,167	13,632	14,425
China.....	63,784	46,886	77,746	73,087
Dutch E. Indies.....	23,965	18,631	2,123	3,071
Korea.....	13,718	14,139	30,273	26,997
Fr. Indo-China.....	8,494	6,372	365	439
Hongkong.....	1,116	628	18,539	21,675
Other Asia.....	9,876	24,892	14,723	28,887
United States.....	77,637	54,043	121,997	131,547
Other countries ...	14,576	15,418	14,856	16,839
Total.....	436,257	394,199	378,246	413,113

**COMMUNICATIONS.** The railways of Japan (including Formosa) had a total length of 5029 miles on March 31, 1909, of which 4552 were state and 477 private, as compared with 4453 state and 446 private on March 31, 1908. Telegraph (March 31, 1909), 3571 offices, with 25,320 miles of line and 134,076 of wire; post-offices, 7463.

**FINANCE.** The monetary unit is the yen, worth 49.8 cents. Revenue and expenditure in thousands of yen are reported for fiscal years ended March 31, as follows:

	1907	1908	1909	1910
Revenue.....	530,448	857,084	794,939	520,488
Expenditures..	464,276	602,401	636,361	520,480

#### BUDGET TOTALS FOR FISCAL YEARS 1911-12

	Ord.	Extraord.	Total
Rev., 1911...	486,793,876	47,509,985	534,303,861
Rev., 1912..	492,138,000	48,796,973	540,934,973
Expend., 1911	417,682,876	116,620,985	534,303,861
Expend., 1912	407,113,274	133,821,699	540,934,973

The budget for the fiscal year 1912, as published by the Finance Department, December 16, 1910, showed the following larger items of estimated ordinary revenue: Total taxes and customs, 324,098,428 yen, including 75,072,765 yen land tax, 32,968,278 income tax, 24,184,783 business tax, 88,727,300 sake excise, 14,727,283 sugar excise, 18,617,564 textile consumption tax, 50,514,464 customs (on imports—there are no export duties); stamps, 25,026,150; state properties and industries, 126,505,991, including 61,346,402 yen monopolies and 48,589,725 yen posts, telegraphs and telephones. Estimated expenditures, ordinary and extraordinary respectively: Finance Department, 184,168,491 and 24,221,149; War, 76,371,236 and 22,021,133; Navy, 40,746,338 and 45,487,255; Communications, 56,889,810 and 20,221,990; Interior, 11,814,733 and 11,900,892; Education, 8,032,170 and 717,092; Justice, 12,017,616 and 751,876; Agriculture and Commerce, 7,323,852 and 7,655,312; Foreign Affairs, 4,249,027 and 235,000; Imperial household, 4,500,000.

Public debt, March 31, 1910: Internal, 1,498,683,089 yen; external, 1,165,675,450; total, 2,664,358,539. About May 1, 1910, a loan of 450,000,000 francs was placed in Paris and one of £11,000,000 in London, the net proceeds being 174,150,000 and 107,360,000 yen respectively.

**ARMY.** The Japanese army is formed by conscription and is divided into an active army (Geneki) where recruits serve for two or three years with the colors, a first active or reserve army (Yobi) where the remainder of the initial 7½-year period is completed, then a 10-year

service with the second reserve (Kobi) and finally a completion of the statutory time of service of about 5 years with the national army (Kokumin). There was also a recruiting reserve (Hoju) maintained to supply the wastage of war, but its advantages were not altogether apparent and its abolition was contemplated. There is available annually for the Japanese army a contingent of about 500,000 men and no difficulty would be manifested in keeping up a standing army of over that number in addition to the reserve so that a force of 1,500,000 trained and equipped men can be placed in the field and maintained. The active army and guard are divided into 19 divisions each of about 12,500 men. During the year progress was made in reorganizing the various arms, and two new cavalry brigades to comprise 1200 men each were being formed and two heavy artillery brigades were being created. In November, 1910, important manœuvres by five divisions and a reserve brigade took place under the direction of General Oku, chief of staff. Great secrecy was maintained about these manœuvres as well as about other departments of the army, including its strength. The total effective peace strength was estimated at about 250,000 men. As organized on a peace basis it consisted of 76 regiments (228 battalions) of infantry; 27 regiments (89 squadrons) of cavalry; 25 regiments (150 six-gun batteries) of field artillery; 19 battalions of engineers; 19 battalions of train; 1 brigade of railway, telegraph, and balloon troops; 6 regiments and 6 separate battalions of coast and fortress artillery; 3 battalions of mountain artillery, and 2 mixed brigades of guards for Formosa and the militia of Tsushima for defense of the islands. The Japanese army commenced military aeronautics in earnest and established an aviation park and headquarters for dirigibles and aeroplanes. In 1909 559,317 young men had reached the age for conscription, of whom 102,864 were put back from 1908. Those excused or excluded for various reasons numbered 193,321. The Japanese army in Korea was to be known as the Chosen Chuto-Gun (Korean stationary troops) and was to consist of the second division plus a frontier brigade. There is also a corps of gendarmerie commanded by a brigadier-general, which, in addition to Japanese, includes 4000 native gendarmes and 400 native police agents.

**NAVY.** Near the end of 1910 the number and displacement of warships, built and building, of 1000 or more tons, and of torpedo craft of 50 or more tons, were as follows (exclusive of transports, colliers, converted merchant vessels, etc.): Battleships of 10,000 tons and over, 15, of 233,298 aggregate tons; coast-defence vessels, 3, of 18,786 tons; armored cruisers, 13, of 138,100 tons; cruisers above 6000 tons, 2, aggregating 13,130 tons; cruisers 6000 to 3000 tons, 12, of 49,580 tons; cruisers 3000 to 1000 tons, 5, of 9158 tons; torpedo-boat destroyers, 58, of 22,907 tons; torpedo boats, 59, of 5560 tons; submarines, 13, of 3092 tons; total, 180 vessels, of 493,671 tons. In 1910 the larger vessels of the effective navy were: Second-class battleships: one, of 12,320 tons (completed in 1897); one, of 10,960 tons (1898); first-class battleships, one of 14,850 (1899); 2 of 15,200 each (1900 and 1902); 2 of 12,674 each (1901); one of 12,700 (1902); one of 13,516 (1904); one of 15,950 (1906); one of 16,400 (1906); one of 19,250 tons (1909); the *Satsuma*, with a main arma-

ment of four 12-inch and twelve 10-inch guns and a speed of 20 knots; one of 19,800 tons (1910), the *Aki*, four 12-inch and twelve 10-inch guns and 20.5 knots speed; armored cruisers: 2 of 9700 tons each (1899); 2 of 9750 each (1901); one of 9850 (1901); one of 7726 (1902); one of 7299 (1904); one of 7700 (1904); 2 of 13,750 each (1907); 2 of 14,620 tons each (1909), the *Kurama* and *Ibuki*, four 12-inch and eight 8-inch guns and 22 knots speed. Battleships building in 1910 were the *Kawachi* (launched October 15, at Yokosuka) and *Settsu*, twelve 12-inch and ten 6-inch guns and 20.5 knots. An armored cruiser of 27,000 tons, 27 knots, has been ordered built in England. The *Tone*, a scout-cruiser, was completed in 1910, and three others were building. Also three destroyers were building, of 1150 tons each, the largest of their type except the British *Swift*. Personnel, December 31, 1909, 56,806 officers and men. Naval estimate for fiscal year 1911, 75,722,122 yen; 1912, 86,233,593 yen. See BATTLESHIPS, and NAVAL PROGRESS.

**GOVERNMENT.** The executive authority is vested in the emperor, acting through a cabinet whose members are appointed by and responsible to himself. The legislative power devolves upon a parliament of two chambers, the House of Peers and the House of Representatives. The latter consists of 379 members, elected by male subjects having reached the age of 25 and possessing certain property qualifications. The emperor in 1910 was Mutsuhito, who was born November 3, 1852, married February 9, 1869, and succeeded to the throne February 13, 1867. Heir-apparent, Prince Yoshihito, born August 31, 1879. Cabinet at the end of 1910 (from July 14, 1908): Premier and Minister of Finance, General Marquis Katsura Taro; Foreign Affairs, Count Komura Jutarō; Interior, Baron Hirata; War, ———; Navy, Vice-Admiral Baron Saitō Minoru; Justice, Viscount Okabe; Agriculture and Commerce, Baron Ōura; Communications, Baron Goto; Education, Mr. Komatsubara. About June 1, 1910, the Minister of War, General Viscount Terauchi Masakata, was appointed resident-general of Chosen (Korea).

## HISTORY

**MANCHURIAN RAILWAY QUESTION.** Late in December, 1909, the United States Secretary of State, Mr. Knox, addressed a note to the governments of Japan, China, Great Britain, Russia, France and Germany proposing the neutralization of the Manchurian railways. The note was published in the United States on January 5, 1910. (See UNITED STATES, *History*.) When in the spring of 1909 the American government learned of the two railway concessions by the Chinese government to certain British, French and German groups of bankers, it decided on a plan of American coöperation and in July asked the Prince Regent to admit American bankers to a share of the loan. This was granted and the rights that had been reserved to the British, French and German capitalists were extended to the American group, which was to supply one-fourth of the loan as its share, that is, about \$30,000,000. (See CHINA, *History*.) In the course of these negotiations the American Secretary had pointed out to the other governments that the chief danger to the "Open Door" policy in China and to her proper

commercial development lay in a disagreement between the Powers and urged a union of the four great financial nations, United States, France, Great Britain and Germany on the principle of equal opportunity. The note on Manchurian neutralization was a step in this same direction. It aimed at the placing of China in control of the railroads, which should be managed directly by an international syndicate, solely for commercial and not for political purposes. Thus the roads would be taken out of Eastern politics and placed under an impartial administration. In a memorandum accompanying the proposals, the Secretary referred to the coöperation of British and American firms in the Chinchow-Aigun railway, for the construction of which the Chinese government had granted them a concession. He asked the other Powers to give it their support. Under her agreements with China in 1896 and 1898 Russia claimed exclusive and absolute right of administration over her railway zone in Manchuria and consequently adopted certain administrative regulations at Harbin and other Siberian points, which caused friction with the Chinese authorities and with foreigners. Russia still claimed these rights in spite of the treaty of Portsmouth, which had provided that the roads, except in the leased district, should be strictly economic and commercial. Such causes of friction would be removed by the proposed scheme of neutralization. Stipulation had already been made with China that the Peking government might purchase the railroads at cost in 1938, or obtain control of them without payment eighty years after the date of agreement. So the neutralization scheme merely sought to give China the privilege of anticipating this right. It was soon evident that the press of the countries concerned in the Knox proposals was hostile. The comment on it in the Japanese press was decidedly unfavorable, characterizing it as wholly contrary to the spirit of the Portsmouth treaty, and as virtually confiscating Japan's Manchurian rights. The Japanese and Russian governments addressed notes in reply on January 21, politely declining the American proposals. The reasons for the rejection were soon afterwards outlined by Count Komura, Japanese Minister of Foreign Affairs. He said that many enterprises had been started on the understanding that the railway would remain in the possession of the Japanese government; that while that government intended to observe scrupulously the principle of the "Open Door" and equal opportunity in Manchuria, the proposed neutralization would radically alter the conditions established by the treaties of Portsmouth and Peking and have serious results in the region of the South Manchurian Railway. The government had therefore to decline the American proposal, but it did so with assurances of continued friendship toward the United States and in the hope that the justice of its position would be appreciated. At intervals during the year there was much criticism of the course of the Japanese in Manchuria. They were accused of violating the "Open Door" policy and of trying to keep the markets of the three great eastern provinces exclusively for the Japanese. A specific charge was made early in the year that great quantities of Japanese goods were admitted free of duty or at more favorable rates than the goods of foreign nations. These charges were met by the Japanese with the

explanation that the goods consisted of supplies for the South Manchurian Railway or for the railway guards and were therefore exempt from duty, or were destined for the leased territory of Kwantung. Nevertheless there were repeated recriminations on this subject from time to time.

**CONVENTION WITH RUSSIA.** An agreement with Russia was signed on July 4, 1910, and its terms were communicated to the British and French governments. The main points in it were to the effect that the contracting parties, with a view to facilitating communication and developing trade between their respective countries, engaged to coöperate in improving the railway lines in Manchuria; and that they furthermore engaged to maintain the *status quo* according to all the treaties concluded between Russia and Japan or between those two Powers and China. If this *status quo* were threatened they engaged to take measures for its maintenance. The convention was taken as a definite retort to the Knox proposals.

**OTHER EVENTS.** The budget estimates for 1910-11 were presented by Marquis Katsura on January 24; ordinary revenue, 486,793,876 yen, ordinary expenditure, 417,682,876, extraordinary revenue, 47,509,985, extraordinary expenditure, 116,020,985. He proposed a 30 per cent. increase of official salaries, but in the House of Representatives this was reduced to 25 per cent. The land tax was reduced. A loan was authorized in January to the South Manchurian Railway for the improvement of Port Arthur and the carrying out of the Antung-Mukden line. A law was passed in March authorizing foreigners under certain conditions to own land in Japan outside the fortified zones and Formosa, Karafuto and Hokkaido. This was not granted unless the countries from which they came conceded the same privilege to Japanese. A scandal was brought to light in March in the Yokosuka naval arsenal involving the loss of about \$500,000, and charges of corruption were made by the press against the war office. On July 1, Port Arthur was thrown open to the shipping of all nations. Floods in August caused widespread damage and great loss of life. Reports were incomplete, but gave the number of killed at 880 and about as many injured or missing and estimated at 200,000 the number of persons in need of relief in Tokyo alone. Several persons were arrested in Tokyo on May 28, for the manufacture of bombs for anarchistic purposes. In September a plot against the Emperor was discovered. It was said to be the first time that such a conspiracy had ever been made. The 26 prisoners were convicted early in November by a specially appointed secret court, which recommended the severest sentence, namely, capital punishment. (See KOREA.)

**JAPANESE IMMIGRATION.** See CALIFORNIA, and IMMIGRATION AND EMIGRATION.

**JASTROW, J.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**JAVA.** An East Indian island; the most important of the Dutch colonial possessions. Area (Java, with Madura and several other small islands adjacent), 50,775 square miles; population (end of 1905), 30,098,088. Batavia, the capital of the Dutch East Indies, had (1905) 138,551 inhabitants. Government schools (1907), 328, with 74,526 pupils; private, 561, with 59,029. Java and Madura produce a suffi-

cient supply of food for a dense population, besides exporting sugar, tobacco, tea, coffee, etc. Special imports and exports (1908), 183,387,000 and 310,903,000 guilders respectively. Resident (1910), F. K. Overduyn. See DUTCH EAST INDIES.

**JEBB, L.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**JEFFERSON, E. P.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**JEFFERSON, JOSEPH.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**JENKINS, EDWARD.** An English politician and author, died June 4, 1910. He was born in Bangalore, India, in 1838. He was educated at McGill University, Montreal and at the University of Pennsylvania. He became a barrister of Lincoln's Inn in 1864 and for the six years following served as counsel for the coolies before the Demerara Coolie Commission. He served also as Agent-General for Canada and as a member of the Royal Commission on Copyright. In 1870 he was defeated in an attempt to win a seat in the House of Commons, but four years later was successful. He was again defeated in 1881 and in two following elections. He wrote much and his book, *Gina's Baby*, a short pamphlet ridiculing British poor law and charity methods created a veritable sensation and sold into hundreds of thousands of copies in the early 70's. Among his other works, including fiction, and economic writings are *Lord Bantam*; *The Coolie*; *The Captain's Cabin*; *Fatal Days*; *A Week of Passion*; *State Emigration*; *Statesmanship*, and *Imperial Federation*. At the time of his death he was editor of the *Overland Mail* and the *Homeward Mail*.

**JERICHO, EXCAVATIONS AT.** See ARCHÆOLOGY.

**JERROLD, LAWRENCE.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**JERROLD, M. F.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**JESPERSEN, D.** See FRENCH LITERATURE.

**JESSUP, HENRY HARRIS.** A Presbyterian clergyman and missionary, died April 28, 1910. He was born in Montrose, Pa., in 1832, and graduated from Yale College in 1851 and from the Andover Theological Seminary in 1855. In the same year he was ordained. From 1856 to 1860 he was a missionary at Tripoli, Syria, and from 1860 to the time of his death he was a missionary at Beirut. He was missionary-editor of the Arabic Journal, *El-Neshra*, and was professor of theology and homiletics. In 1879 he was Moderator of the General Assembly. Among his published writings were: *The Mohammedan Missionary Problem*; *The Women of the Arabs*; *The Greek Church and Protestant Missions*; *Syrian Home Life*; and *Kamil, Moslem Convert*.

**JEWETT, CHARLES.** An American surgeon and physician, died August 7, 1910. He was born at Bath, Me., in 1839 and graduated from Bowdoin College in 1864. He studied medicine at the College of Physicians and Surgeons, N. Y., and took his degree in 1871. From that time he practiced medicine in Brooklyn. From 1880 to 1900 he was professor of obstetrics at the Long Island College Hospital and was consulting surgeon at several other hospitals in Brooklyn and New York. He was the first surgeon in America to perform symphysectomy. From 1878 to 1880 he was president of the Medical Society of the County of Kings and he was a member of many

foreign and American medical societies. He was the author of several medical text-books, and contributed to medical journals.

#### JEWISH CHARITIES. See CHARITY.

**JEWS.** As it is impossible to treat the subject of the Jews as a unified body, the article below treats the most important events relating to Jews in general in the different countries of the world during 1910, which includes the Jewish year 5671.

The statistics of the number of Jews in the world are based largely upon estimates. Official figures can be obtained only in Russia, Austria-Hungary, Germany and a few other countries. According to the best available sources, the total number of Jews in the world at the latest date available was about 11,500,000. Of this number the largest portion are found in Russia, where there are something over 5,000,000; second in order is Austria-Hungary, where the Jews numbered over 2,000,000.

The religious census of the United States, made in 1906 and published in 1910, gives statistics for orthodox Jews in the United States. According to these figures, there were in 1906 101,457 heads of families of the orthodox faith, with 1769 organizations. The total number of Jews in the United States, however, is much larger than this. The Jewish population is estimated by the *American Jewish Year Book* at 1,777,185. In Germany there are 607,862; in Turkey, including Palestine, 463,686; in British Empire, 380,809; in Rumania, 250,000; in Holland, 106,000; in Morocco, 109,000. Nearly every country in the world is represented by these estimates.

**UNITED STATES.** The most important events in the history of the Jews of the United States in 1910 was in connection with the passage of measures restricting immigration. On March 11, 1910, the Committee on Immigration and Naturalization of the House of Representatives granted a hearing to those opposed to any further restriction of immigration. Many prominent Jews appeared before the committee to protest against further restrictive measures.

On February 28, two Jews of New York City interviewed President Taft regarding recognition of American passports by Russia. The President stated that he had instructed the American Ambassador at St. Petersburg to make strong recommendations to the Russian government. In March the Jews of New York, Philadelphia, Rochester and other cities boycotted kosher butchers because of the increase in prices. The butchers claimed inability to continue business under the old prices and closed their shops. The boycott was suspended during Passover. On May 24, the Presbyterian General Assembly in a meeting at Atlantic City, N. J., adopted resolutions condemning Russia for persecutions of the Jews. The protests were especially against the edict for the expulsion of the Jews at Kiev. On June 19 the Jewish community of New York City took measures to establish kosher kitchens in all Jewish and non-sectarian hospitals and Jewish orphan asylums.

**FRANCE.** On January 23, Anti-Semitic and Royalist organizations in Paris showed hostility to distinguished Jews. They disturbed the lectures of M. Lyon-Caen, Dean of the Faculty of Law, and prevented M. Schrameck, Director of the Prisons Department at the Ministry of the Interior, from delivering a lecture on the organization of this department. On April 15 a

law passed by both Houses in Parliament permitted native Tunisians to contract military engagements for three, four or five years in the regiments stationed on the Continent and in the French navy. This law was made especially in favor of young Jews who had hitherto been unable to enter African regiments of the Foreign Legion unless they bound themselves for a minimum of five years.

**BRITISH EMPIRE.** On January 20 the Jews were barred out of public schools as teachers in Montreal, Canada, as a result of the division of public school funds between Protestant and Roman Catholic School Boards. Several prominent Jews were elected to Parliament in the election in January, 1910. On April 25 the British Foreign Office was approached by a committee of the Board of Deputies and Anglo-Jewish Association in reference to the threatened expulsions at Kiev. Representations were made to the British Ambassador at St. Petersburg urging him to employ his good offices in the matter.

**RUSSIA AND FINLAND.** On January 3, the Russian Senate issued a statement that foreign Jews might visit Russia provided they pay the fee of members of the First Guild. On January 14, 800 Jewish families, ordered banished immediately from Kiev, were allowed to remain until April. The Governor-General of Turkestan expelled 300 Bokhara Jews from Tashkend. On January 23 a conference of great medical authorities on insanity and mental deficiency called attention of the public to the tragic economic and social condition of the Jews resulting in the tremendous growth of the number of lunatics among them. On March 18 the Ministry of the Interior issued a confidential circular to governors of outlying territories, excepting Poland and interior provinces, ordering the summary expulsion of all Jews who had no right of residence. Among these were persons living from ten to twenty years in one place. In order to deprive these people of right of residence, the Ministry revived an old provision of "Jewish Statutes." Expulsion of Jews from Kiev and other Russian cities went on during the year. In May a number of Jews were arrested at Lodz, Vilna and Warsaw for political offenses. On May 20 a Commission of Inquiry into the rights of residence of Jews in Kiev decided to allow only 10 per cent. of over 2500 families to remain in that city. The rest were ordered to leave during the month.

**PALESTINE.** The immigration of Jews into Palestine continued during the year and in general the Turkish government was favorable to this immigration.

#### JOAQUINITE. See MINERALOGY.

**JOHNS HOPKINS UNIVERSITY.** An institution of higher learning at Baltimore, Md., founded in 1876. The number of students enrolled in the various departments of the university for the year 1910-11 was 790, and in addition about 100 men and women, mostly public school teachers, attended the afternoon college courses, which were arranged especially for their benefit. The resident teachers in the faculty number 197. The following changes in the faculty during the year 1909-10 are noteworthy: Mr. Arthur C. Lovejoy was called to the professorship of philosophy and began his work; M. Louis Adolphe Terracher came to the university from the University of Upsala to conduct courses in French literature, with the rank of

associate professor, giving his courses in the French language. Dr. Adolf Meyer, who was elected in 1909 to the professorship of psychiatry, assumed his duties at the University. There were no especially noteworthy benefactions during the year. A promising effort was being made to secure funds which will make possible the long anticipated removal of the University to its new site.

**JOHNSON, C.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**JOHNSON, HIRAM WILLIAM.** See CALIFORNIA.

**JOHNSON, TOM L.** See OHIO.

**JOHNSTON, Sir H. H.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*, *Political and Social Science*.

**JOHORE.** A native state at the southern extremity of the Malay Peninsula, whose foreign affairs are controlled by Great Britain. Area, about 9000 square miles; population (chiefly Malays and Chinese), about 200,000. Chief town, Johore Bahru. Gambier, pepper, sago, tea, coffee and gutta-percha are exported. Sultan (1910), H. H. Ibrahim.

**JOLIET, CHARLES.** A French journalist and author, died in March, 1910. He was born at Saint Hippolyte-sur-le-Doubs in 1832 and was educated at the lyceum at Versailles. He entered the department of finance in 1854 and was attached in 1859 to the treasury of the Italian army. He continued in the government service until 1864 when he took up the profession of journalism. He had already written for several journals in Paris and had published a volume, *L'Esprit de Diderot* (1850). He also wrote several comedies which were produced at the Théâtre Français. Among his most successful writings are *Le roman de deux jeunes mariés* (1866), and *Mademoiselle Chérubin* (1870). His fame was increased during the Franco-Prussian war and subsequently by his novels treating of incidents during that period. Among the more important of these are *Les romans patriotiques* (1871); *Le train des maris* (1872), and *Trois uhlands* (1872). His later works include *Le crime du pont de Chatou* (1882) and *Violette* (1890).

**JONES, H.** See LITERATURE, ENGLISH AND AMERICAN, *Philosophy and Religion*.

**JONES, H. T.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**JONES, PEMBROKE.** An American naval officer, died in May, 1910. He was born in 1824. At the time of his death he was the oldest living graduate of the United States Naval Academy. He was an officer in the United States Navy at the time of the Civil War, but resigned and joined the Confederacy. He fought with distinction throughout the war. Previous to the outbreak of the Civil War Jones had become famous as one of the participants in a duel, which was one of the last to occur on American soil. This duel was fought with James Barron Pope on May 2, 1849, at Old Point Comfort. Both men were severely wounded. Pope afterwards became a poet of considerable repute and died in 1887.

**JORDAN'S LAW.** See BIOLOGY.

**JOURDAN, JAMES.** An American soldier and public official, died November 1, 1910. He was born in New Jersey in 1832, and early in life removed to Brooklyn. In 1854 he enlisted in the 14th regiment and was a member of this command at the outbreak of the Civil War. He

served in the battle of Bull Run and in nearly every important single engagement in the war in which his regiment took part. Before the close of the first year he was appointed lieutenant-colonel of the 56th New York regiment and in 1862 was made colonel of the 158th New York regiment. He became brigadier-general of the 18th army corps in 1863, and in 1865 was brevetted major-general. From 1866 to 1872 he was colonel of the 13th regiment of the New York National Guard. In the latter year he became commander of the 5th New York brigade. Six years later he was made major-general of the second division, which rank he held until 1883. General Jourdan, with General Benjamin F. Tracy and Silas B. Dutcher (q. v.) was long the moving spirit in Republican affairs in Brooklyn. Shortly after the war he was appointed by General Grant collector of internal revenue from Brooklyn. He was an officer and director in a large number of corporations.

**JUDICIARY, FEDERAL.** See UNITED STATES, *Federal Judiciary*.

**JUPITER.** See ASTRONOMY.

**JUVENILE COURTS.** NEW YORK. A most important development in the organization of special courts for children was the enactment of the Page law in New York. Part of this dealt with special Children's Courts in the various boroughs of New York City and with the appointment of judges and probation officers for them. It had been the custom to appoint the judges of the Children's Courts in Manhattan for monthly periods and in Brooklyn for bi-monthly periods. This practice of rotation was strongly disapproved by the Page Commission, appointed in 1908 to investigate the inferior criminal courts. The new law, effective September 1, provided that judges should be appointed to the juvenile courts on account of their special fitness and, so far as possible, for substantial periods of time. The law abolished the old plans of appointing patrolmen to act as probation officers and provided for twenty-three new appointments with salaries. It also declared, however, that probation officers are confidential appointees of the presiding judge. The object of this provision was to remove the appointments from the competitive civil service rules. When he signed the bill, Governor Hughes declared that this clause would not thus remove the appointments and the Municipal Civil Service Commission agreed with this opinion in July. An examination for seventeen hundred applicants was announced for August 11; but the commission postponed it and in October reversed its previous opinion. This view was not sustained by Mayor Gaynor, and the commission again prepared to hold an examination. The law also extended the period of probation to three years for children.

**BUFFALO AND ROCHESTER.** On January 1, the law establishing a Children's Court in Buffalo became effective. One of the defects of this law was declared to be that it limited the scope of the jurisdiction of the court to the city itself, although the need in the immediately surrounding towns of the same county was equally great. A bill applying to Monroe county in which Rochester is located obviated this objection by making the jurisdiction of the court coextensive with the county. This bill, which was one of the most advanced ever presented to a State legislature, provided that the child must be

brought before the court on a petition rather than on a complaint; that proceedings should be civil rather than criminal; that hearings should be heard in the judge's chambers, the public being excluded; that a detention home should be built by the county, arranged and conducted as a home; that both paid and voluntary probation officers should be appointed; and that the judges have wide discretion in dealing with each case on its merits.

**GALVESTON.** At Galveston in the spring a special school for delinquent and incorrigible boys was formed as supplementary to the activities of the juvenile court. The school was located in an abandoned hotel in good repair and well situated in rural surroundings. The plan was to get from one hundred to one hundred and fifty of the worst boys off the streets and place them under close supervision under favorable conditions.

**RECENT TENDENCIES.** This illustrates one of the tendencies of the juvenile court movement to extend the original scope of its action. Judge Lindsay of Denver believed that he found in delinquent and dependent children the results of the cupidity and hypocrisy of established interests and proceeded to an attack on social and economic injustice in high places. Others have developed means of correcting some of the defects of bad training and environment. Detention homes and detention home schools have been erected for boys and for girls; instruction in health and sanitation, and medical and surgical attention have been provided; the number and functions of probation officers have steadily increased; and the responsibility of parents for the delinquency of their children has been established in the law.

**MEETINGS.** The third annual State conference of Probation Officers in New York was held at Rochester in November, about one hundred persons being in attendance. The discussion developed the importance of careful study and discriminating judgment in the treatment of each case individually; as well as the need of firmness of execution on the part of the probation officers. The discussion dealt with the importance of using every means to avoid the necessity of returning any incorrigible delinquent to the court; the value of mental and medical examinations for juveniles; and the desirability of preventing the names of children brought before the court from being published in the local newspapers. The next conference will be held at Watertown, November, 1911.

The National Probation Officers' Association met at St. Louis in June. Three of its five sessions were devoted to juvenile probation. The discussions dealt with methods of probation and with the judge's relation to probation. The opinion seemed to develop that volunteer probation officers are much less satisfactory in every way than salaried officers. Especial emphasis was laid on the value of establishing the best possible individual relations between probation officers and the child. The majority opinion held that while the judge should exercise general supervision over probation officers, the latter should feel an independent responsibility for the success of their own work.

**KAINZ, JOSEPH.** An Austrian actor, died September 20, 1910. He was born in Wieselburg, Hungary, in 1858. He first appeared on the stage in Vienna in 1873. He afterwards played for three years at the Court Theatre in

Munich and in 1883 was engaged by the German Theatre in Berlin. In 1899 he returned to Vienna. He visited the United States several times. His best known parts were those of Romeo, Mortimer in Schiller's *Maria Stuart*, Ferdinand in the same author's *Kabale und Liebe*, and Alceste in Molière's *Misanthrope*.

**KALISCH, BERTHA.** See DRAMA.

**KAMERUN.** A German West African protectorate on the Gulf of Guinea. Estimated area, 190,600 square miles; estimated population, 3,500,000 (white in 1908, 1128). Capital, Buša. Area under cacao, 7578 hectares; rubber, 2100; kola, 220; coffee, 21. Vanilla, ginger, pepper, palm oil, and ivory are produced; cattle raising is carried on in the hinterland. Oversea imports (1908), 16,788,864 marks; exports, 12,163,881 (rubber, 4,779,740 marks; cacao, 2,654,213; palm kernels, 2,203,628; palm oil, 987,526; ivory, 900,368). Vessels entered, 421, of 1,315,564 tons. Railways open and under construction, 320 miles. Telegraph lines, about 500 miles; a cable connects with Southern Nigeria. Revenue and expenditure (1909-10), 12,183,000 marks (subvention, 2,267,000). Dr. Gleim was appointed governor in 1910. See ANTHROPOLOGY AND ETHNOLOGY.

**KANSAS.** One of the North Central Division of the United States. Its area is 82,158 square miles. Its capital is Topeka.

**POPULATION.** The population of the State in 1910 according to the Thirtieth Census was 1,690,949, as compared with 1,470,495 in 1900 and 1,428,108 in 1890, an increase in the population in the decade from 1900 to 1910 of 15 per cent. The State ranked twenty-second in point of population, the same relative rank which it occupied in 1900. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** The production of coal in Kansas increased materially in 1909 over 1908. The production in the former year was 6,979,778 tons as compared with 6,245,508 tons in 1908. The production in 1910 was reduced considerably as a result of the strike and lock-out in the coal mines of the State. In the production of petroleum Kansas ranks tenth among the States. There were produced in 1909 1,263,764 barrels as compared with 1,801,781 barrels in 1908, a decrease of 538,017 barrels. The value of the product was \$491,633 as compared with a value of the product for 1908 of \$746,695. Kansas with Oklahoma forms the Kansas-Oklahoma field, which ranks second in the output of crude petroleum among the States. In the past few years, however, Kansas has decreased in its petroleum output, while Oklahoma has increased. The smelting of zinc is one of the most important industries of the State. There were produced in 1909, 9185 tons of spelter as compared with a production of 8625 tons in 1908. The State ranks fourth in the production of spelter. The cement industry of the State is very important. In Kansas the output amounted in 1909 to 5,357,235 barrels of Portland cement, valued at \$3,790,257, a great increase over the production of 1908, which was 3,854,603 barrels valued at \$2,874,457. A large quantity of natural cement was also among the products of the State. In the production of salt Kansas ranks fourth, being surpassed only by New York, Michigan and Ohio. Among other mineral products are coal products, sand-lime brick, zinc red and zinc white.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909-10 are shown in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	8,900,000	169,100,000	\$76,095,000
1909.....	7,750,000	154,225,000	83,282,000
W. Wheat, 1910	4,330,000	61,060,000	51,290,000
1909	5,895,000	85,478,000	82,059,000
Sp. Wheat 1910.	120,000	1,008,000	847,000
1909.	150,000	1,725,000	1,656,000
Oats, 1910.....	1,400,000	46,820,000	15,851,000
1909.....	964,000	27,185,000	11,690,000
Barley, 1910....	300,000	5,400,000	2,430,000
1909....	270,000	4,860,000	2,576,000
Rye, 1910.....	38,000	532,000	385,000
1909.....	40,000	568,000	426,000
Buckwheat, 1910	1,000	15,000	14,000
1909	1,000	14,000	14,000
Flaxseed, 1910..	50,000	410,000	861,000
1909..	55,000	385,000	424,000
Potatoes, 1910..	88,000	5,016,000	4,514,000
1909..	91,000	7,189,000	5,679,000
Hay, 1910.....	1,792,000	2,061,000a	16,076,000
1909.....	1,829,000	2,652,000	15,912,000

a Tons.

**FINANCE.** According to the report of the State Treasurer for the fiscal year ended June 30, 1910, there was a balance on June 30, 1909, of \$1,177,029, which taken with the receipts for the year made the total sum available for the expenses of the State, \$7,236,016. The amount of the disbursements for the year was \$6,209,851, leaving a balance June 30, 1910, of \$1,026,165. The chief disbursements were for the general revenue fund, for the permanent school fund, for the annual school fund, and for the Topeka fiscal agency account.

**CHARITIES AND CORRECTIONS.** The charitable institutions of the State under its full control include the Topeka State Hospital at Topeka, the Osawatimie State Hospital at Osawatimie, the State Hospital for Epileptics at Parsons, the State Home for Feeble-minded at Winfield, School for the Deaf at Olathe, School for the Blind at Kansas City, State Orphans' Home at Atchison, Boys' Industrial School at Topeka and Girls' Industrial School at Beloit. In addition, all private asylums and children's aid societies are subject to the visitation, inspection and supervision of the State Board of Control of State Charitable Institutions. On November 20-30, 1910, a conference of charities and corrections was held at Beloit, which was the eleventh session of this conference. Many eminent experts on charitable matters were present and made addresses.

#### POLITICS AND GOVERNMENT

There was no meeting of the State legislature in 1910 as the sessions are biennial and the last was held in 1909. The next sessions begins January 10, 1911.

**CONVENTIONS AND ELECTIONS.** As in the other Central and Western States of the Union, the chief question in the political campaign of 1910 was the relative strength of the insurgent or progressive and the regular elements of the Republican party. Kansas has always been one of the most radical States in politics, and some of its representatives in the Senate and in the House have been among the most aggressive leaders of the progressive party. Governor Stubbs was elected in 1908 on the platform representing many of the reforms advocated by the progressive wing of the party. He was again a candidate for renomination in 1910 and in the primaries held on August 1 was nomi-

nated on the insurgent platform. These State primaries resulted in almost a complete victory for the progressives. In six of the eight congressional districts insurgent candidates were nominated in opposition to sitting members of the "regular" faction. National party leaders considered the contest for congressional seats so important that Speaker Cannon was sent into the State to make several speeches with the view of preventing the nomination of insurgents in place of the regular candidates, but these efforts were unavailing to stem the tide of insurgent success. The vote in the State was largely on the tariff issue and the result showed the general opposition to the Payne-Aldrich tariff law among the Republicans of the State. Representatives Murdock and Madison, the two Republican Congressmen renominated without opposition, were among the strongest opponents in the House of the tariff measure, while Senator Bristow was equally strong in the Senate in his opposition to certain features of the measure. As a result of the primaries, Alexander Mitchell, a progressive, defeated Congressman C. F. Scott, a regular in the second district; Fred S. Jackson, progressive, defeated Congressman J. M. Miller, a regular in the fourth district; R. R. Rees, progressive, defeated W. A. Calderhead, a regular in the fifth district; in the sixth district, I. D. Young, progressive, defeated W. A. Reeder a regular; in the seventh and eighth districts, E. H. Madison and Victor Murdock, insurgents, were returned without contest, no nominations having been made against them by the regulars. In the first and third districts, which are strong Republican districts of the State, D. R. Anthony and Philip P. Campbell, regulars, were nominated over their progressive antagonists.

The Republican Party Council met on August 30, and, as was foreshadowed by the primaries held on August 1, the progressives were in overwhelming control. The leaders of the regular wing of the party, under Senator Curtis, sought through the council an unqualified endorsement of President Taft. They were unable, however, to bring this about and the only endorsement the President received was an assurance that the Kansas Republicans would commend such acts as met with the approval of the Kansas insurgents. A portion of the platform relating to national matters was written under the direction of William Allen White, Senator Bristow, Victor Murdock and Governor Stubbs. In relation to the tariff, the platform declared that the Republicans of Kansas did not recognize the revision of the tariff of 1909 as a satisfactory fulfillment of the tariff pledge of the Republican platform. It pledged the people of Kansas that the Republican Senators and Representatives from the State should vote for legislation that would create an independent, non-partisan tariff commission, with ample powers and sufficient appropriation to ascertain gradually the difference between the cost of production at home and abroad, and after having obtained such information, pledged that the Republican Senators and Representatives would immediately fix the duties on the basis of this information. The platform pledged the Senators and Representatives to vote for a joint resolution that would promote the revision of the tariff one schedule at a time. It demanded the strictest enforcement of the anti-trust laws and pledged the Kansas Republican Congressional delegation to vote for a law providing for a jail sentence for wilful violation

of the anti-trust laws. The platform contained a plank pledging the Kansas Senators and Representatives to vote and work for effective laws that will prevent over-capitalization of corporations and will insure actual use of the moneys received for the sale of stocks and bonds in construction or extension or betterment of property owned by the corporations. The plank further pledged the Republican delegation to work for legislation that will give the Interstate Commerce Commission authority over the issue of stocks and bonds of common carriers. The platform also declared for a State public utilities law, the initiative and referendum, the recall law, and a declaration favoring a penitentiary sentence for men convicted the second time of violation of the State prohibitory liquor law. The Democrats at the primaries held on August 1 nominated State Senator Geo. H. Hodges for Governor. The election on November 8 was a victory for the Republicans, and Governor Stubbs was re-elected by a majority of 16,167 votes. All the Republican candidates for Congress were elected.

**OTHER EVENTS.** On February 11, Judge A. W. Dana of the District Court of Shawnee county handed down an important decision relating to the operation of fire insurance companies in the State. He declared that the eighty fire insurance companies were not a trust and did not have an iron-clad agreement as to insurance rates in the State. A suit was brought in 1907 by the Attorney-General and the State Insurance Commissioner, who contended that the insurance companies had entered into an agreement to use certain uniform insurance rating books.

On April 4, the United States Supreme Court reversed the judgment of the Kansas Supreme Court that the International Text Book Company had no right to sue in a State Court because it had not filed with the Secretary of the State a statement as a condition precedent to doing business in the State as required by Kansas law. The company carries on a correspondence school at Scranton, Pa., and its business is interstate in character, according to the opinion of the court, as written by Justice Harlan. Intercourse of this nature among the States and the transmission of intelligence should not be obstructed or unnecessarily encumbered by State legislation. The requirement for the filing of the statements as a condition precedent to doing business in the State was therefore imposing a condition upon a corporation of another State seeking to do business in Kansas, which, in the case of interstate business, directly burdened such business and could not be inflicted without violating the constitution. The court declared that the State could not thus burden interstate commerce and that that section of the Kansas law was therefore void.

**STATE OFFICERS:** Governor, W. R. Stubbs; Lieutenant-Governor, Richard C. Hopkins; Secretary of State, Charles H. Sessions; Treasurer, Mark Tullay; Auditor, W. E. Davis; Attorney-General, John S. Dawson; Adjutant-General, C. I. Martin; Superintendent of Education, E. T. Fairchild; Superintendent of Insurance, Ike S. Lewis—all Republicans.

**JUDICIARY:** Supreme Court: Chief Justice, Wm. A. Johnston; Associate Justices, Judson S. West, Silas Porter, Clark A. Smith, Rousseau A. Burch, Henry F. Mason and Alfred W.

Bensen, all Republicans; Clerk, D. A. Valentine.

**STATE LEGISLATURE, 1911:** Republicans, Senate, 35; House, 71; joint ballot, 106; Democrats, Senate, 5; House, 53; joint ballot, 58; Independent, Senate, none; House, 1; joint ballot, 1; Republican majorities, Senate, 30; House, 17; joint ballot, 47.

**KANSAS CITY, Mo.** See CIVIL SERVICE.

**KANSAS, UNIVERSITY OF.** An institution of higher learning at Lawrence, Kansas, founded in 1864. The number of students enrolled in the several departments of the university for the year 1910-11 was 2228. The faculty numbered 148. There were no notable changes in the faculty during the year, and no benefactions of especial note were received. The library contains about 65,000 volumes. The productive funds of the university amounted in 1909-10 to \$151,000, and the income to \$443,000, chiefly from the State. The President is Dr. Frank Strong.

**KASSON, JOHN ADAMS.** An American diplomat and publicist, died May 16, 1910. He was born at Charlotte, Vermont, in 1822, and graduated from the University of Vermont in 1842. He was admitted to the Massachusetts bar in 1845, but removed to Iowa and engaged in the practice of law in 1857. In 1848 he was a delegate to the Free Soil Convention. He was a delegate to the Republican National Convention in 1860. In 1861-2 he was first assistant postmaster-general. He was a member of the 38th and 39th Congresses from 1863 to 1867, and from 1868 to 1872 was a member of the Iowa General Assembly. From 1873 to 1877 he was again member of Congress. From the latter year to 1881 he was United States Minister to Austria. He was again a member of Congress from 1881 to 1884, and in 1884-5 he was United States Minister to Germany. In the latter year he acted as commissioner to the Congo International Conference. In 1893 he was appointed special envoy to the Samoan International Conference, and from 1897 to 1901 was United States special commissioner plenipotentiary to negotiate reciprocity treaties. He was a member of the American-Canadian Joint High Commission in 1898. He was the author of *Evolution of the United States Constitution*, and *History of the Monroe Doctrine* (1904), and numerous essays and speeches.

**KATSURA,** Premier. See JAPAN.

**KEDAH.** A Malay state on the west coast of the Malay Peninsula, under British protection since the conclusion of the Anglo-Siamese treaty of March 10, 1909. Capital, Alor Star. Area, including the Langkawi group of islands, about 3150 square miles. Population (according to a native census taken years ago and necessarily inaccurate), 219,000, almost entirely Malays. There are but ten European officers in the state. There are ten vernacular schools (attendance 1204), besides an English school at Alor Star. The official language is Malay; the calendar, the Mohammedan; the religion, Islam. The principal products are paddy and rice, tapioca, coconuts, pepper, fruits, and rubber. Opium is a government monopoly. The mining industry has declined, owing partly to the fact that the more considerable deposits (notably in the Kulim district) are practically worked out, and partly to the tendency to subordinate to the cultivation of rubber all other industries. Cattle and buffaloes are raised in

considerable numbers. The number of cattle reported early in 1908 was 30,000; but the rinderpest, raging from July, 1908, to November, 1909, carried off about 30 per cent.—the loss being estimated at more than 300,000 Straits dollars. Determined effort on the part of the administration was ultimately successful in stamping out the disease. The administration has also taken effective measures against systematic cattle-thievery, which was a flourishing trade under the old régime. No returns of imports and export values are given. The export of rice to Penang in 1909 was 3,278,000 gangtangs; of paddy 7,950,000. Exports of tin (1909), 12,502 piculs (744 tons) in 1909, against 12,698 piculs in 1908. Actual revenue (derived chiefly from opium farms) and expenditure (1909), 1,240,276 and 1,005,328 dollars respectively. There are 131 miles of telegraph, a telephone system, cables under the Merbok and Muda rivers, and four post-offices. The nominal ruler is (1910) Sultan Abdulhamid Halimshah ibni Ahmad Tajudin. British adviser and actual administrator, W. George Maxwell.

The debt-bondage system, under which the debtor works for the creditor until his debt is paid off, is the problem now confronting the administration; and several plans are under consideration for the abolition of the evil, without injustice to either party concerned. The principal evil of the debt-bondage system in Kedah, says Mr. Maxwell, "is not that it entails harsh treatment of the debtor, but that it deprives him of all inducement to work; for it is not in human nature to work hard when hard work brings no reward."

**KEESE, G. POMEROY.** An American writer, died April 22, 1910. He was born in New York in 1828, and was educated in Flushing, L. I. When still a boy he removed to Cooperstown, N. Y., where he took up his residence at Edgewater, an old family house built by Isaac Cooper, brother of J. Fenimore Cooper, who was his great-uncle. He became a prominent business man and was president of the Second National Bank of Cooperstown for thirty-five years. He wrote much relating to J. Fenimore Cooper and contributed magazine articles to *Harper's*, *Putnam's* and other magazines on various subjects, mostly connected with farming.

**KELANTAN.** A native state of the Malay Peninsula, transferred from Siamese to British sovereignty, March 10, 1909. Estimated area, 5,000 square miles; estimated population, about 300,000 (Siamese, 15,000; Chinese, 10,000). The prevailing religion is Shaffi Mohammedanism. Kota Bharu, the capital, has about 10,000 inhabitants. About 450,000 acres are under cultivation. The products include rice, cocoanuts and copra, betelnuts, rubber, resin and gharu, rattan, bamboo, pepper, tapioca, sugar-cane, and corn. The jungle yields valuable timber. Cattle (90,000), buffaloes (20,000), sheep, goats, and poultry are raised. Gold, galena, pyrites, and tin are mined. Silk-weaving, boat-building, and brick-making are carried on. Imports and exports (1906-7), 1,388,435 and 1,153,948 Straits Settlements dollars respectively. Revenue (1907-8), estimated at 319,700 dollars. There are few roads, internal communication being by means of the rivers. Kota Bharu is connected by telegraph with Bangkok and Penang. The government is administered by a hereditary rajah, assisted by a British adviser (1910, J. S. Mason).

**KELLOGG, V. L.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**KELLY, EDMOND.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**KELLY, MYRA.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**KENT, WILLIAM.** See CALIFORNIA.

**KENTUCKY.** One of the South Central Division of the United States. It has an area of 40,598 square miles. Its capital is Frankfort.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 2,289,905, as compared with 2,147,174 in 1900 and 1,858,635 in 1890. The increase in population in the decade 1900 to 1910 was 6.6 per cent. The State ranks fourteenth among the States in point of population, whereas in 1900 it ranked twelfth. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** The most important mineral product of the State is coal and its mining has been a record of constant growth. The production in 1909 was 10,648,981 short tons, as compared with 10,246,553 short tons in 1908. The reports of the United States Geological Survey indicate an increase of 30 or 40 per cent. over the production of 1909. In the western part of the State the increase was still greater. It was estimated that 9,550,640 short tons were produced, as compared with 5,578,161 short tons in 1909. This increase is largely due to the stoppage of work in the mines in neighboring States on account of the prolonged strike in the coal fields. (See STRIKES AND LOCK-OUTS.) The State is important in the production of petroleum. In 1909 it ranked twelfth among the States and produced 639,016 barrels, valued at \$518,299, as compared with a production of 727,767 barrels, valued at \$706,811, in 1908. The State produces a small amount of iron ore and has important manufactures of pig-iron. There are also considerable manufactures of coke. The clay products are of considerable value and other mineral products include barytes, cement, lime, lead, building stone and zinc.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909-10 are shown in the following table:

	Acreage	Prod. bu.	Value.
Corn, 1910.....	3,630,000	105,270,000	\$55,793,000
1909.....	3,568,000	103,472,000	64,153,000
Win. Wheat, 1910	750,000	9,600,000	8,928,000
1909	670,000	7,906,000	8,776,000
Oats, 1910.....	170,000	4,250,000	1,912,000
1909.....	40,000	3,858,000	2,355,000
Barley, 1910....	1,000	24,000	16,000
1909.....	1,000	24,000	18,000
Rye, 1910.....	13,000	160,000	144,000
1909.....	13,000	165,000	145,000
Potatoes, 1910.	41,000	3,772,000	2,339,000
1909.	40,000	3,680,000	2,355,000
Hay, 1910.....	500,000	645,000a	8,450,000
1909.....	480,000	653,000	7,771,000
Tobacco, 1910..	470,400	381,024,000b	33,149,088
1909.	420,000	350,700,000	37,174,200

a Tons. b Pounds.

**EDUCATION.** The total enrollment in the schools of the State at the end of the fiscal year 1908-9, the latest for which statistics are available, was 448,829. Of these, 404,803 were white and 44,026 were colored. The average attendance was 257,943, of whom 233,889 were white and 24,054 colored. The total number of teachers employed was 11,027, of whom 3862

were male and 7135 were female. The total number of pupils of school age at the end of the fiscal year was 739,836.

The legislature of 1908 passed many important measures which have resulted in a great improvement in educational conditions in the State. The State Superintendent of Education has also carried on a campaign of publicity, designed to arouse public attention in educational affairs.

**CHARITIES AND CORRECTIONS.** The institutions under the State Board of Control include the Kentucky Institution for Feeble-Minded Children, the Central Kentucky Asylum for the Insane, the Western Kentucky Asylum for the Insane and the Eastern Kentucky Asylum for the Insane. For the support and repair of these institutions there was expended in the fiscal year 1909, the latest for which statistics are available, \$160,534.

#### POLITICS AND GOVERNMENT

The State legislature met in 1910 and the chief measures passed will be found in the paragraph *Legislation* below.

Kentucky was one of the few States in which gubernatorial elections were not held in 1910. The term of Governor Willson does not expire until December, 1911. The most interesting result of the primaries for nomination of candidates for Congress was the nomination in the eleventh district on September 15 of Caleb Powers, former Secretary of State, who was three times convicted of complicity in the murder of Governor Goebel in 1900. Mr. Powers was pardoned by Governor Willson in 1909 and since that time he has taken an active interest in the Republican politics of the State. He was nominated in a strongly Republican district and the nomination was equivalent to an election. He was elected on November 7. Opposition to his serving in Congress arose in certain quarters, and there was talk of an attempt to deprive him of the seat to which he was elected on the ground that a pardon did not remove the disqualification due to his indictment and prosecution in connection with the murder of Goebel. No action will be possible, however, until he takes his seat in Congress, as the House in all cases has the power to determine the qualifications of its members. With the exception of Mr. Powers and John W. Langley, in the Tenth District, the Democratic candidates for Congress were elected in the November elections.

**OTHER EVENTS.** In a feud which has long been carried on in Breathitt county, Matt Crawford, a nephew of the late Judge James Hargis (a former political leader of the county, who was shot and killed by his son in 1908), was murdered from ambush at his distillery two miles from Jackson on October 19. Charles Little was arrested for the murder and in thirty-six hours he confessed, was indicted by a special grand jury, was tried and sentenced.

On April 3, Boone Bush, one of the alleged "night riders," charged with the raid on the town of Dycusburg on the night of February 3, 1908, was found guilty by a jury at Marion and was sentenced to one year in prison. This was the first conviction of any of the alleged "night riders" arrested for the numerous raids and whippings in eastern Kentucky, although over 100 men have been arrested and indicted for these raids. Over thirty others are under indictment in the same court for the Dycusburg raid. In April a Federal jury at Covington

found eight residents of Grant county guilty of violating the Sherman Anti-Trust law. They had compelled a farmer named Osborne, by intimidation, to withhold from shipment a quantity of tobacco which he had agreed to sell in Cincinnati. They had done this in the interest of a combination or trust of tobacco growers. All the men convicted were prominent residents of Grant county, and one, John S. Steers, was a clergyman and a member of the legislature. They were punished by fines ranging from \$100 to \$1000. Three days later a jury convicted six farmers of Pendleton county on the same charge. Similar fines were imposed on these men. In still another case \$600 was awarded in damages to W. S. Henderson, a merchant, who had sued twelve farmers of Bracken county, who had forced him by threat to sign agreements concerning his tobacco. On May 31 the "Jim Crow" law of the State was affirmed in effect by the Supreme Court in a suit brought by a colored lawyer of Washington for \$1000 damages against the Chesapeake and Ohio Railway. The court declared that the only question for its decision was whether or not the accommodations furnished him in the Jim Crow car were as good as those from which he had been removed. The courts below had judged that this was the case and their judgment was affirmed.

On February 1 a gas explosion in the Browder coal mine near Drakesboro resulted in the death of 34 men.

**LEGISLATION.** Among the important measures enacted at the legislative session of 1910 were the following: Measures were passed making it lawful for farmers to agree to abstain from growing any kind of crop for any given period or season, and to combine or pool crops of certain commodities in order to obtain a higher price therefor. Such agreements may be recorded and have the same effect as chattel mortgages. The State provided for the first time for the licensing of automobiles. The measure prescribes the registration fee and defines the limit at which cars may be driven in the State. A measure was enacted permitting a corporation to be organized, or to amend its powers to carry on a trust business, banking or real estate title insurance business. The child labor act was extended in its application, which had heretofore been confined to factories, mines and mercantile establishments. It now includes business offices, telegraph offices, hotels, restaurants, farms and boarding houses. In none of these occupations are children between 14 and 16 years of age to be employed without an age and schooling certificate. A measure was enacted by which any person shall be punished who directly promotes or contributes to conditions which render any child dependent, neglected or delinquent. It was provided that the act shall be liberally construed in favor of the State to protect children from neglect of parental duty, even though the person at fault be no relative of the child's. Several important measures were enacted relating to education. County text-book commissioners were provided for. They are authorized to advertise for proposals for uniform school books throughout the county. An elaborate truant act for cities of the fourth class was passed, and the acceptance of the provisions of the Carnegie fund by the State university was approved. The Federal income tax amendment was passed.

A measure was enacted providing for the punishment of persons guilty of cruelty to animals. Several important measures relating to punishment of criminals were enacted. Among these was one permitting indeterminate sentence, the limits of which are fixed by the judge in felonies and by the jury in misdemeanors. One of the two State penitentiaries is set apart as a reformatory for prisoners under 30 years of age, who are not yet hardened criminals. The prisoners are to be educated, credited with a part of their earnings, and in the discretion of the board of managers eventually paroled and discharged. An employment agency for paroled prisoners was also established. An act was passed legalizing all marriages between slaves which were entered into before February 14, 1866. October 12 was made a legal holiday, to be known as Columbus Day. An eight hour day was established for all laborers and mechanics employed on public works either by the State or by a contractor. Several measures were passed for the prevention of coal mine disasters. The chief inspector of mines is authorized to purchase six sets of life-saving apparatus, to distribute them throughout the State and keep constantly on hand in convenient localities supplies for rescue work for mine accidents. A general registration law was passed. The State board of health takes charge of the State system for the registration of births, deaths and marriages, acting through the State bureau of vital statistics, and the local registrar in the registration district.

**STATE OFFICERS.** Governor, A. E. Willson; Lieutenant-Governor, W. H. Cox; Secretary of State, Ben L. Bruner; Treasurer, Edwin Farley; Auditor, Frank P. James; Attorney-General, James B. Breathitt; Superintendent of Education, Elsworth Regenstein; Commissioner of Agriculture, M. C. Rankin; Commissioner of Insurance, Charles W. Bell—all Republicans.

**JUDICIARY.** Court of Appeals: Chief Justice, J. P. Hobson, Dem.; Justices, W. E. Settle, Dem.; Ed. C. O'Rear, Rep.; John M. Lasing, Dem.; John D. Carroll, Dem.; T. J. Munn, Dem.; Shackelford Miller. Commissioner of Appeals, Wm. R. Clay; Clerk, Napier Adams, Rep. Miller's and Clay's politics not given.

**STATE LEGISLATURE, 1911.** Democrats, Senate, 24; House, 74; joint ballot, 98. Republicans, Senate, 13; House, 26; joint ballot, 39. Democratic majority, Senate, 11; House, 48; joint ballot, 59.

**KHIVA.** A Russian vassal state in central Asia. Area, 24,000 square miles; estimated population, 800,000 (400,000 nomad Turkomans). Capital, Khiva, with between four and five thousand inhabitants; New Urgenj has 3000. The people are Mohammedans. Chief products, cotton and silk. A war indemnity of £274,000, levied by Russia in 1872, is still being paid off in annual instalments; and the intervention of Russian troops is frequently necessary to enable the khan to raise the amount exacted. The khan, Seyid Mohammed Rakhim Bahadour Khan (born about 1845; succeeded in 1865), died August 29, 1910, and was succeeded by his son, Seyid Asfendiar Khan (born 1871). Heir-apparent, Seyid Teymour Ghazi (born 1904).

**KHUEN-HEDEVRARY,** Count. See AUSTRIA-HUNGARY, *History*.

**KIAO-CHAU.** A German protectorate, in-

cluding a harbor, town, and district on the east coast of the Chinese province of Shantung, leased (1898) from China for 99 years. Area, exclusive of the bay, about 200 square miles; population, 33,000. Area of surrounding neutral zone or "sphere of influence," about 2500 square miles, with a population of about 1,200,000. There are mission schools. Tsingtau is the seat of government. Foreign imports and exports (1908), £2,098,770 and £1,604,441 respectively. Vessels entered (1908), 473, of 587,602 tons (and 6014 junks); cleared, 474, of 590,903 (and 5550 junks). A railway (247 miles) runs from Tsingtau to Tsinan, with a 30-mile branch to Poshan. Administration expenses (1909-10), 12,352,597 marks. A governor (1910, Vice-Admiral Truppel) administers the colony under the Navy Department.

**KIEL CANAL.** See CANALS.

**KIKUYU.** See ANTHROPOLOGY AND ETHNOLOGY.

**KING, ADAM E.** An American public official, died November 19, 1910. He was born in Delaware in 1833 and having studied law was admitted to the bar. He was practicing at the outbreak of the Civil War and joined the Second Delaware regiment as second lieutenant. He was afterwards transferred to the Thirty-first New York volunteers. He was promoted for gallant services and at the close of the war was a brigadier-general. After the war he took an active interest in politics and was twice a candidate for Congress. He represented Maryland in a number of national conventions and in 1888 was chairman of the American delegation at the Convention in Chicago. He headed the electoral ticket in 1896 and was made president of the electoral college. In 1868 he was appointed appraiser of the port of Baltimore, serving until 1873. He then became naval officer in which position he served for more than four years. In 1890 he was appointed Consul-General at Paris by President Harrison and remained in that position for three years.

**KING, BASIL.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**KING, EDWARD.** An Anglican bishop, died March 8, 1910. He was born at Westminster in 1829 and received his education at Oriel College, Oxford. He was admitted to holy orders in 1854 and became curate at Wheatley. In 1858 he was appointed chaplain and assistant lecturer at Cuddesdon College. Here he remained until 1873 when he succeeded Dr. Ogilvie in the chair of pastoral theology at Oxford. Here he became identified with the extreme theological party and was recognized as one of its leading members. He exercised great influence in the University and was said to have had a gift of sympathy which was "nothing less than a form of genius." In 1885 he was appointed by Mr. Gladstone Bishop of Lincoln in the face of considerable opposition. On account of his well known views in regard to church ritual and other matters, the beginning of his career at Lincoln was carefully watched. In 1889 he was brought to trial for using the cope and mitre in other churches than the Cathedral. The verdict was, in the main, adverse to his conduct of the ritual service, but the judgment was loyally accepted by the bishop. In 1909 he was the only bishop who voted in the House of Lords for Lord Lansdowne's amendment on the motion for the second reading of the Finance Bill, which

brought about the dissolution of Parliament. Among his published writings is *Meditations on the Seven Last Words*.

**KING, W. M. L.** See CANADA, *Government and History*.

**KIPLING, RUDYARD.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**KIRKBY LUNN, Mme.** See MUSIC.

**KIRSCH.** See LIQUORS, FERMENTED AND DISTILLED.

**KLOPSCH, LOUIS.** An American editor and publisher, died March 7, 1910. He was born in Germany in 1852 and was educated in the public schools. He came to the United States at an early age and from 1877 to 1890 was proprietor of the *New York Daily Reporter*. From 1884 to 1890 he was proprietor of the *Pictorial Associated Press*. In 1892 he became proprietor of the *Christian Herald* and in this capacity became notable for the large sums of money raised and distributed through this paper for international charities. These contributions amounted to over \$3,500,000. Among the objects these sums were applied to were the Russian famine in 1892, the Indian famine in 1897-8, the relief of starving reconcentrados in Cuba in 1898, famine and cholera in India in 1900, famine in China in 1901, famine in Finland and Sweden in 1903, famine in Japan in 1906, famine in China in 1907, and nearly all the notable disasters up to the time of his death. For his services he received the thanks and appreciation of sovereigns in Europe and Asia.

**KNAUS, LUDWIG.** A German genre painter, died December, 1910. He was born at Wiesbaden in 1829 and studied at Düsseldorf and Paris, spending also considerable time in Italy. From 1874 to 1884 he was professor at the Berlin Academy. During these years he was considered one of the great genre painters of the world. His works were characterized by obvious feeling and sharp delineations of character. Technically he was a skillful artist and excellent colorist. Several of his important paintings, including his "Repose in Egypt of the Holy Family," "Old Woman and Cats," "Female Figure of Peace" and "A Girl's Head" are at the Metropolitan Museum in New York City. Other important pictures by him are "Funeral in the Hesse Village," "The Village Musician," "Solomon's Wisdom" and "A Peep Behind the Scenes."

**KNOWLEDGE.** See PHILOSOPHY.

**KNOX, P. C.** See UNITED STATES, *Foreign Relations*.

**KNOXVILLE, TENN.** See EXPOSITIONS.

**KOCH, ROBERT.** A German physicist and bacteriologist, died May 27, 1910. He was born at Clausthal, Hanover, in 1843, and while still a youth manifested deep interest in scientific subjects. At the age of seventeen he had finished his work in the high school and was obliged to delay a year before entering the University of Göttingen, the legal age of entrance being eighteen. At the university he took a course of medicine. In his second year he took the prize of 80 thalers in gold offered for the best essay written by a student in any class. After securing his degree he began the practice of medicine at Posen. In the meantime, however, he had written a series of articles on the spleen, and had begun the study of bacteria. His studies were interrupted by the Franco-Prussian war, in which he served, and on its close he returned to Posen. His writings on

bacteriology had, however, already attracted attention and in 1882 he was called to Berlin where he was made a member of the Board of Health. When the cholera broke out in India and Egypt, the German government sent him to study the disease and methods of preventing its spread. He continued his researches in India, and while there announced his theory that cholera was due to a specific bacterium. His doctrine was opposed by English physicians, but Koch by microscopic examination of the bodies of cholera victims proved that he was correct. Upon his return to Berlin the Reichstag voted him 100,000 marks in recognition of his eminent service to science. He had not merely discovered the source of one disease, but promulgated a theory of all disease, which time and experiment have confirmed. Previous to his study of cholera he had already isolated the tubercle bacillus in 1882. To do this he was obliged to invent new appliances for microscopical work. With this apparatus and his new method of staining to render micro-organisms visible, he showed that consumption was due to a single specific germ and began the battle that has reduced tuberculosis from an inevitably fatal scourge to a disease which may be combated with success. The work of Dr. Koch made of bacteriology a definite science. All the present day understanding and employment of inoculation as a means to ward off disease came from his investigations and the study they induced other scientists to make. The discovery of tuberculin was one of his most noted achievements. In November, 1890, it became known prematurely that Dr. Koch had discovered and tested by a series of careful experiments a compound substance which, when administered by injection hypodermically was destructive of the tubercle bacillus and presumably curative in cases of tuberculosis. It is probable that the report of no other scientific discovery caused more world-wide excitement than this. Doctors, scientists and consumptives from all countries made pilgrimages to Berlin. In the midst of the turmoil Koch remained for a long time silent. He refused to make any unusual claim for his preparation, which is now generally known as Koch's Lymph, but in 1891 he issued a statement. While he did not state the nature of his preparation he made it plain that it is itself prepared from tubercle bacilli and that it is a poison. Moreover he stated that its reactions were so violent as to make its usefulness doubtful. The scientific value of tuberculin except in diagnosis has not become clear even at the present time.

One of the most important investigations of Dr. Koch was that of the sleeping sickness in Africa, which, until his researches, was regarded as incurable. He traced the disease to the tsetse fly and still further to the trypanosoma microbes on the body of the fly. He prepared an antitoxin which alleviated the disease. He was equally successful with malaria. After establishing thorough sanitary conditions he stamped out the disease at Brieni, a low-lying island in the Adriatic belonging to Austria. He found the malaria to be due to a mosquito parasite. While draining the swamps, he treated the sick with an antitoxin which he concocted. The undertaking, which was financed by the Austrian government, was a complete success. In 1901 Dr. Koch created considerable discussion in scientific circles by declaring that the disease of tuber-

culosis was not the same in men and animals, or rather that bovine and human tuberculosis were different types and not communicable from the one species to the other. This theory is still in question, although many scientists regard it as having been negatively proved. In 1906 he received the Nobel prize for services to medicine. He was without doubt the foremost of contemporary scientists in the bacteriological field. Among Koch's published works are the following: *Untersuchungen über die Aetiologie der Wundinfektionskrankheiten* (1878; Eng. trans. by Cheyne, 1880); *Ueber die Milzbrandimpfung Eine Entgegnung auf den von Pasteur in Genf gehaltenen Vortrag* (1882); *Beitrag zur Aetiologie der Tuberculose* (1882; Eng. trans. by Boyd, 1886); *Ueber die Cholerabakterien* (1884; Eng. trans. by Laycock, 1886); *Ueber Naturheilung und medizinische Kunst* (1885); *On Disinfection*, abstracted and translated by Whitelegge (1886); *Weitere Mitteilungen über ein Heilmittel gegen Tuberculose* (1890); *Ueber bakteriologische Forschung* (1890; trans. into English 1891); *Ergebnisse der vom Deutschen Reich ausgesandten Malaria-Expeditionen* (1900); *An Investigation of Pathogenic Organisms*, translated by Horsley (1886); *Aerztliche Beobachtungen in den Tropen* (1898); *Diagnosis, Treatment and Prophylaxis of Tropical Malaria*, translated by Shakespeare (1898).

**KOCIAN**, JAROSLAV. See MUSIC.

**KOEBEL**, W. H. See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**KOHLRAUSCH**, FRIEDRICH. A German physicist, died in January, 1910. He was born at Rinteln in 1840 and was educated at Erlangen and Göttingen. In 1866 he became professor at Göttingen and subsequently was appointed to chairs at Zurich (1870); Darmstadt (1871); Würzburg (1875) and Strassburg (1888). In 1895 he was appointed president of the Imperial Physico-Technical Institute of Charlottenburg near Berlin, and under his direction the work of this bureau was widely extended and developed. He made special researches and many important discoveries in the field of electrolysis and made a brilliant record as an experimental physicist. He devised new apparatus and methods for measurement. His researches embraced all departments, but those dealing with electricity and magnetism were of special importance. The elasticity of solids and various problems in light were also investigated by him. His *Leitfaden der praktischen Physik*, published in 1872, is considered a standard work on physical laboratory methods and measurements. He was also the author of *Ueber den absoluten Leitungswiderstand des Quecksilbers* (1888) and of many papers contributed to scientific journals.

**KOREA**, or CHO-SEN. The peninsula between the Yellow Sea and the Sea of Japan, constituting a Japanese possession since August 29, 1910. Capital, Seoul.

**AREA, POPULATION, ETC.** The area is stated at 14,123 square ri (83,083 square miles). The results of an investigation as to the number of inhabitants, published in the summer of 1910, showed a population of 12,959,981. Several semi-official figures were published in 1910 for the number of Japanese residents, varying from about 143,000 to over 146,000. Foreigners were reported to number at the end of June 13,382, of whom 11,533 were Chinese, 490 Americans, and 189 British. Seoul has perhaps 250,000

inhabitants, and Ping-Yang 50,000. In general, the Koreans are ancestor worshippers; among the upper classes Confucianism prevails. In 1910 the number of monasteries was reported at 958, with 5198 monks and 563 nuns. The reorganization of the primary school system has been undertaken, and new industrial and technical schools are being established. The progress of Christian missions in Korea has probably not been surpassed in history. As the result of about 25 years of Christian effort, native Christians numbered some 250,000 in 1910. There were under Christian auspices 874 day schools, with 18,217 pupils, and 28 boarding schools, with 1750 pupils. Missionaries were reported to number 453 on June 30, 1910; of these 308 were American, 90 British, 50 French, 4 Russian, and 3 German. In 1910 the missions were subjected to considerable criticism, emanating from Japanese sources. It was alleged that, to advance their own cause, some of the missionaries were fostering the native antagonism to Japanese usurpation and that many natives had professed Christianity for the purpose of somehow furthering their own political and nationalistic aims; but there appeared to be little truth, if any, in these statements.

**PRODUCTION, COMMERCE, ETC.** As a result of many years of incompetent government and oppressive taxation, the Korean people seem to have lost incentive; they present in general a picture of political degeneration and economic involution. The pilfering of the tax gatherer and his superiors has discouraged labor and thrift so that now a lazy population derives little more than its immediate necessities from the really large natural resources of the country. This state of affairs is by no means universal, but is far too prevalent not to arouse comment. It is to be expected that, while the Japanese annexation was effected for Japanese benefit, the new régime will bring large economic and social betterment to the masses of native population. In the spring of 1910, the cultivated area was reported at 1,806,327 cho (one cho = 2.45 acres). The staple products are rice and other cereals, beans, cotton, tobacco, and hemp. The ginseng industry is controlled by the government. The value of mining products for 1909 is reported at 4,997,059 yen, of which 4,393,923 represented gold. Copper, iron, silver, graphite, coal, etc., occur, but are little worked. The fisheries are being developed by Japanese.

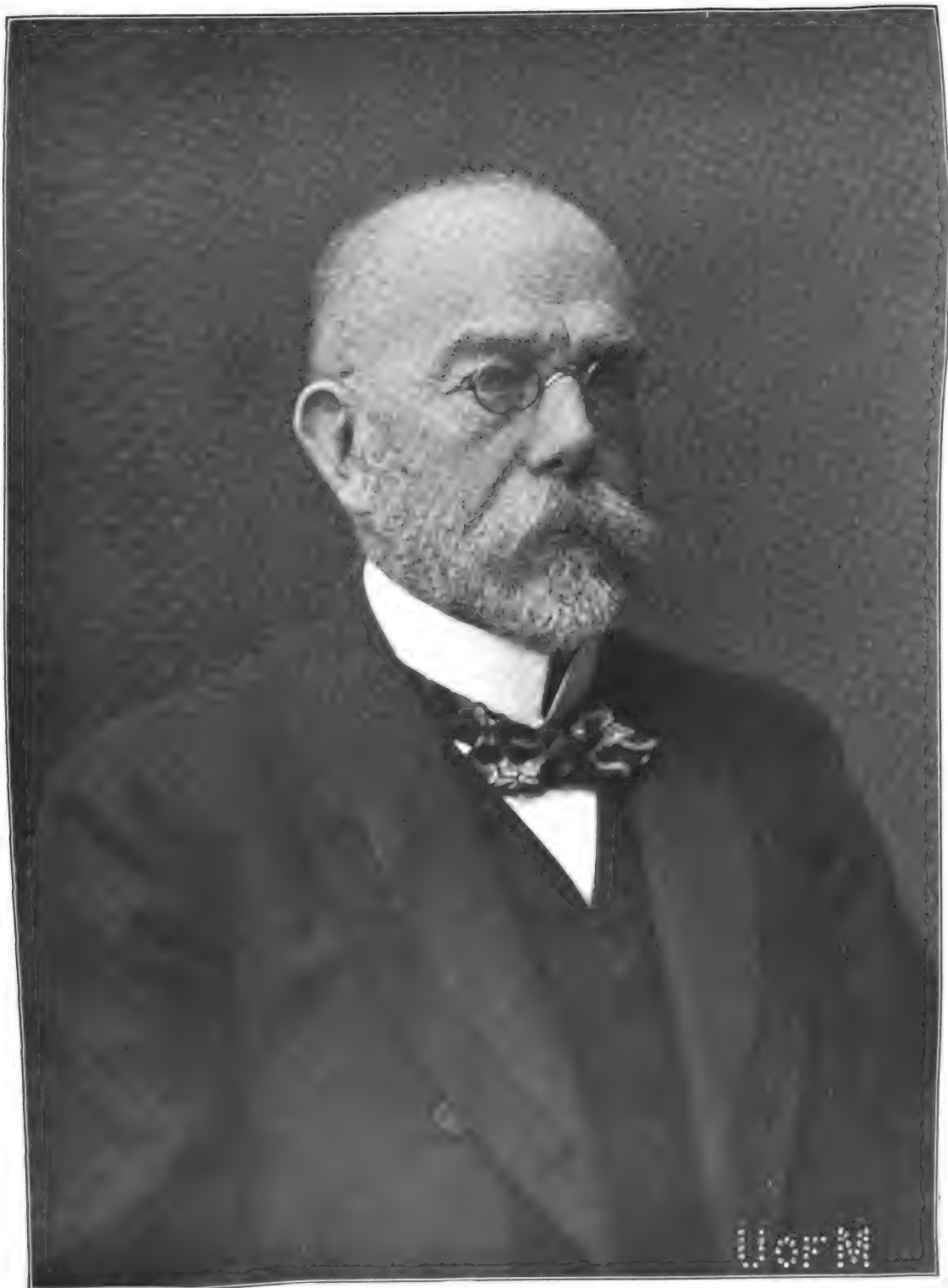
Imports and exports (exclusive of gold and silver) have been valued as follows, in yen:

	1907	1908	1909
Imports . . . .	40,050,405	41,025,523	36,686,116
Exports . . . .	17,002,234	14,113,310	16,223,193

The leading import is cotton goods; others of importance are yarn, timber, silk, kerosene, sugar and sake. The principal exports in 1909 were: rice, 5,530,580 yen; beans, 3,630,145; ginseng, 854,798; hides, 815,091; cattle, 425,799; raw cotton, 274,698; fish, 262,055. The greater part of the trade is with Japan and passes through the ports of Chemulpo and Fusan.

There are 688 miles of railway and about 2900 miles of telegraph line (7000 of wire); post-offices, over 1900.

**FINANCE.** At the time of the annexation to



ROBERT KOCH

ॐ नमः

Japan (see below), the annual state expenditure was said to be about 23,000,000 yen and the revenue from Korean sources about 14,000,000 yen, the principal items of the latter being land tax 6,000,000, customs 3,000,000, and state industries 3,250,000. Deficits for some time had been barely covered by loans and grants from Japan. Korean national existence had been one long story of extortions on the part of officials and the gradual extermination of the wealth-earning spirit among the people. Including Japanese subventions, etc., the budget for the fiscal year 1910 balanced at 20,915,678 yen. Annexation put an end to the Korean budget, thereafter the finances being treated in the same document as those of Japan. The Japanese budget of December 16, 1910, for the fiscal year 1912, showed for Korea a revenue of 48,731,782 yen (24,067,583 ordinary and 24,674,199 extraordinary) and an equal expenditure (27,891,437 ordinary and 20,850,345 extraordinary). The provision of suitable incomes for members of the Korean royal family, the issue of bonds for 30,000,000 yen to provide annuities for various nobles affected by the annexation, a Japanese grant of 17,000,000 yen for industrial and educational purposes in Korea, and the large annual deficits that will doubtless continue for several years constitute no inconsiderable demands upon the imperial treasury.

**GOVERNMENT AND HISTORY.** A brief review of Korea's governmental status may serve to explain the treaty of annexation concluded at Seoul August 22, 1910, between plenipotentiaries of the Korean and Japanese emperors, whereby the peninsula lost its last claim to independence and the Japanese protectorate administration was succeeded by prefectural government. The dynasty which came to an end in 1910 dates its existence from 1392, but China was recognized as suzerain prior to 1895. In May of that year, by the treaty of Shimonoseki, which concluded the Chino-Japanese war, China renounced her claims, and Japanese influence in Korea became manifest. Japanese interests developed rapidly, and it was mainly to protect them against Russian encroachment that the war with Russia was precipitated. On February 23, 1904, just after the war began, Japan concluded with Korea a treaty whereby the former guaranteed the independence and territorial integrity of Korea and the latter agreed to adopt Japanese advice in regard to administrative reforms. Then followed the Anglo-Japanese agreement of August 12, 1905, and the Russo-Japanese peace treaty of September 5, 1905, both of which recognized Japan's paramount interests in Korea. The Japanese government presently tightened its hold on the peninsula through its treaty with the Korean government, Nov. 17, 1905, from which officially dates the protectorate. This treaty dropped the guaranty of Korean independence, substituting therefor the much narrower undertaking to maintain the security and respect the dignity of the Korean imperial house. The treaty moreover, gave to the Japanese government the control of Korean foreign relations and provided that a Japanese resident-general be stationed at Seoul. The first resident-general was the eminent constructive statesman, the late Prince (then Marquis) Ito Hirobumi, who took up his duties March 2, 1906. Ito found himself hampered by the obstructionist tactics of the

Korean emperor, Yi Hiung, and forced his abdication, July 20, 1907, in favor of the emperor's son, Yi Chök, a more pliant executive. Nevertheless, the authority of the resident-general in internal matters was too much restricted to an advisory capacity (the Japanese "advice" being usually disregarded by the Korean functionaries), and on July 31, 1907, a Japanese-Korean agreement was concluded, whereby all administrative measures and all superior official appointments were made subject to the approval of the resident-general, and Japanese subjects became eligible for official positions in Korea. Thereupon Japanese officials were made vice-ministers in the government departments (which were six in number: Interior; Treasury; Education; Justice; Agriculture, Commerce and Industry; and Imperial Household). Soon after Ito resigned (May, 1909), a further agreement (July 24) provided that Japan take over the administration of justice and the management of prisons. Before the end of 1909 Korea had lost all semblance of an independent monarchy. A permanent Japanese army was established in the country, the police system was under Japanese direction, Japanese consuls at the treaty ports had been replaced by residents, and the Japanese were introducing manifold reforms, including the establishment of courts, the abolition of extortion, and the reorganization of the educational and financial systems. The resident-general, not the emperor, was the real ruler.

After the retirement of Ito, the administrative progress of the residency-general appeared to be not wholly satisfactory to the Tokyo government. The new resident-general, Viscount Sone Arasuke, who followed Ito in the summer of 1909, suffered extreme ill health and in May, 1910, resigned his post, being succeeded by the Japanese minister of war, General Viscount Terauchi Masakata, with Yamagata Isaburo as vice-resident-general. Sone died September 13, 1910. Prince Ito was murdered October 28, 1909, by a native Korean, who was subsequently executed.

On July 22, 1910, a treaty of annexation (which was preceded by a remarkable document in which the Korean emperor, through Japanese finesse, prayed for annexation), was signed by Viscount Terauchi and Yi Wan Yong, the Korean minister president of state, and was promulgated and took effect on August 29. The treaty stipulated the complete and permanent cession to the Emperor of Japan of all rights of sovereignty over the whole of Korea, the conferring of appropriate titles on members of the Korean imperial house and sufficient annual grants for their proper maintenance, the conferring of peerages and monetary grants upon certain Koreans deserving special recognition, and, in Japan's administration of Korea, full protection to person and property and the employment in the public service, so far as circumstances might permit, of duly qualified and loyal Koreans. Viscount Terauchi and Mr. Yamagata were appointed governor-general and vice-governor-general respectively. Upon annexation, certain determinations of the Japanese government were announced by the governor-general as follows: That the name of Korea hereafter be Cho-sen, the ancient name of the kingdom; that the governor-general of Cho-sen have the same administrative and legislative func-

tions as the governor-general of Formosa; that the present customs dues remain unaltered for ten years, but be called transit dues of entry and transit dues of exit; that amnesty be granted to political prisoners and those whose offenses deserve extenuation; that there be a 20 per cent. remission of taxes for 1910 and complete remission of unpaid taxes of former years; that bonds be issued to the extent of 20,000,000 yen to provide the grants, mentioned above, to certain Koreans; that 17,000,000 yen be advanced by the Japanese treasury for industrial and educational purposes in Cho-sen; that consular jurisdiction (extraterritoriality) in Cho-sen be abolished; that, as treaties between Korea and foreign Powers lapsed upon the annexation, Japanese treaties, so far as applicable, be extended to Cho-sen; that religious freedom prevail; and that laws existing at the time of annexation continue until amended. At the end of September, thirteen prefectural governors were appointed for the new province, comprising seven Japanese and six Koreans. The new style of the deposed emperor became Shotoku-kyu Ri O Denka (His Imperial Highness Prince Ri of the Shotoku Palace) and of his father, Tokuju-kyu Ri Tai O Denka (His Imperial Highness Great Prince Ri of the Tokuju Palace); in each case Ri is the Japanese form of the Korean family name Yi.

**KOSSEL, ALBRECHT.** A German physiologist, awarded the Nobel prize for medicine in 1910. He was born at Rostock, Germany, in 1853, and studied at Strassburg and Rostock, and after teaching in the universities of Strassburg and Berlin became professor of physiology at Marburg in 1895. In 1901 he was called to the same chair at Heidelberg. He became well known by his researches in physiological chemistry and among his works may be mentioned: *Untersuchungen über die Nukleine und ihre Spaltung sprodukte* (Strassburg 1881); *Die Gewebe menschlichen Körpers und ihre mikroskopische Untersuchung* (with Behrens and Schiefferdecker, Brunswick, 1889-91); *Leitfaden für medizinisch-chemische Kurse* (Berlin, 1904), and *Hoppe-Seylers Zeitschrift für physiologische Chemie*.

**KREISLER, FEITZ.** See MUSIC.

**KROPOTKIN, Prince.** See LITERATURE, ENGLISH AND AMERICAN, History.

**KRYPTON.** See ATOMIC WEIGHTS.

**KUMM, KARL.** See EXPLORATION.

**KURDISTAN.** See PERSIA.

**KWANG-CHOW-WAN.** A territory on the Chinese coast leased to France (1898) for 99 years. Area, 386 square miles (land area, about 190); population (1906), 177,097. Imports and exports (1906), 2,359,248 and 1,911,835 dollars respectively (1 dollar = about 50 cents). The port is free. The administrator-in-chief (1910, M. Salabelle) is subject to the control of the governor-general of French Indo-China.

**KWANTUNG, or KWANTO.** A Japanese dependency, occupying the southern part of the Liaotung Peninsula (Manchuria), leased March 27, 1898, by China to Russia for 25 years; the territory was held by Japan at the end of the Russo-Japanese war, and was leased by China to Japan under the treaty of December 22, 1905, which also conceded to Japan the control of the South Manchurian Railway to Changchun (see MANCHURIA). Area, 1221 square miles; population (1909), 445,414, of whom

nearly 400,000 were Chinese. Japanese settlers in 1910 numbered over 32,000, of whom about two-thirds were in the Dairen district. Dairen (formerly Dalny) had in 1909 41,333 inhabitants and Port Arthur (Ryojun) 15,195. Dairen is the chief port; on July 1, 1910, the western harbor of Port Arthur was opened to navigation. Total imports and exports in 1909 were valued at 24,549,283 and 42,812,302 yen respectively, the trade being chiefly with Japan. The railway, which connects Port Arthur and Dairen with Mukden and the Chinese Eastern Railway system, has a length of about 80 miles within Kwantung. The budget for 1909-10 balanced at 4,879,489 yen; for 1910-11, 4,867,988; for 1911-12, 4,984,926; of the latter figure, ordinary revenue and ordinary expenditure were 1,714,186 and 3,453,007 yen respectively. Deficits are covered by Japan. The governor-general in 1910 was General Viscount Oshima.

**LABOR.** In addition to this article, matter relating to various aspects of the labor movement and labor problems will be found under the following heads: ARBITRATION AND CONCILIATION; INDUSTRIAL; CHILD LABOR; BOYCOTT; AMERICAN FEDERATION OF LABOR; EMPLOYERS' LIABILITY; INJUNCTION; LABOR EXCHANGES; LABOR LEGISLATION; OCCUPATIONAL DISEASES; OLD AGE PENSIONS; STRIKES AND LOCKOUTS; TRADE UNIONS; UNEMPLOYMENT; WOMEN IN INDUSTRY; and WORKMEN'S COMPENSATION. All of these and the cross references found in them should be consulted for a complete survey of the developments affecting labor during the year.

**STEEL INDUSTRY CONDITIONS.** Labor conditions in the steel industry in the Pittsburgh region received considerable attention during the year. This was particularly due to the Pittsburgh Survey, which had revealed most deplorable conditions of overwork among the steel workers, and in part to labor disturbances and to the activities of the American Federation of Labor. A strike of the workers at South Bethlehem led to an investigation by the Department of Commerce and Labor at the special request of Congress. It was found that twenty-five per cent. of the 9184 workers were employed twelve hours a day for seven days per week; that fifty-one per cent. worked twelve hours for six days; that about twenty-nine per cent. earned only twelve and one-half cents per hour; and that forty-six per cent. received less than sixteen cents per hour. There was a complete lack of organization among the workers. The strike, which was led by the skilled workers who feared they might lose their 60-hour week, was attended by no disturbances for three weeks; but as a result of the introduction of State constabulary and strike breakers there was a great deal of rioting, many assaults and some bloodshed.

The government report called out the statement by President Charles M. Schwab of the Bethlehem Steel Company, that low wages and long hours were not peculiar to his company. Private investigation showed that the 7-day week and 12-hour day were quite general in the steel industry, though no other centre paid wages below 16½ cents per hour. In March and April the United States Steel Corporation ordered a reduction of Sunday work, increased wages, and inaugurated a system of compensation for injuries. (See EMPLOYERS' LIABILITY.) Nevertheless the American Federation of Labor (q.

v.) continued its efforts for better conditions in the steel industry.

**STATE REGULATION OF RAILWAY EMPLOYMENT.** A New York law of 1907 established an eight-hour day for railway telegraphers. In 1908 the attorney-general brought suit against the Erie Railway for violation. The case finally reached the New York Court of Appeals which in April, 1910, affirmed the constitutionality of the law. It held it to be well within the powers of the police legislation and not in conflict with the Federal statute of 1907 establishing a nine-hour day for such workers. The law was held to be merely a supplement of the Federal law setting a higher standard. The case was to be appealed to the United States Supreme Court. It was of considerable importance because decisions of the highest courts of Arkansas, Missouri, Montana and Wisconsin had held similar State laws unconstitutional because of the extent of the Federal statute.

**PUBLIC CONTRACTS IN NEW YORK.** In New York State much discussion was aroused by the investigation into the conditions of the Italian and other laborers employed on the construction of the Ashokan Dam and the Catskill Aqueduct for New York City and the Barge Canal for New York State. While conditions were found to be better on the city contracts than on those of the State, yet, in both, the laborers were herded together in insanitary huts; many cooked their own food; and most of them were exploited by ignorant and avaricious padrones. While the city was taking active measures to eliminate the padrones, to standardize boarding and housing conditions, to provide schooling for the children of the workers and for the workers themselves, the State showed little concern for the human element in its great undertaking. The creation in the State Labor Department of the Bureau of Industries and Immigration with power to inspect labor camps and the conditions of employment of foreigners will establish better conditions for alien labor. This Bureau is expected to learn of demands for such labor and to aid it in finding suitable jobs.

**LABOR, AMERICAN FEDERATION OF. BOYCOTT AND CONTEMPT CASES.** The famous cases growing out of the injunction secured by the Buck's Stove and Range Co. in restraint of a boycott carried on by the Federation was not concluded at the end of the year. The case growing out of the modification of the original injunction had been appealed to the United States Supreme Court by both parties; the case which resulted in the sentence of imprisonment against the leading officials of the Federation was likewise appealed in January, 1910; these two cases were merged in one appeal to come before that Court on October 11. On that date hearing was postponed to January 16, 1911. Meanwhile an agreement had been entered into between the Buck's Stove and Range Co. and the American Federation of Labor and affiliated organizations, thus ending the long and bitter industrial struggle. This agreement provided for the closed shop. It was stated by leaders of the Federation that this agreement would have no effect on the appeal before the Supreme Court, but others held that since the real dispute had been settled and only moot questions remained the Court would not devote its time to their consideration.

Early in September C. W. Post of Battle Creek, Michigan, a minority stockholder of the Buck's Company, applied to the Circuit Court of St. Louis for an injunction restraining the company and the Federation from carrying out the closed shop agreement. This injunction was denied by Judge McPherson mainly on the ground that the persons against whom the injunction was sought had not been served with notices of the hearing. At the same time the court said that every employer of labor has the right to determine for himself whether his business shall be operated as a closed or an open shop; "whether it is for the better to have a closed shop or an open shop, men differ." At the same time Mr. Post began suit in the same Circuit Court against the officers of the Federation, some fifty other officers of international, State and local unions, and their organizations, together jointly with the Buck's Stove and Range Co., to recover damages as a result of the historic boycott. This suit alleged damages of \$250,000, and under section 2 of the Sherman Anti-Trust law sought to collect threefold this amount as legal damages. The defendants appeared in court October 3 to join the issue. The legal basis for this suit was the decision recently handed down in the *Hatters' Case* (see *BOYCOTT*). The essential difference was that in this case the company boycotted was made a co-defendant with the boycotting unions. The defendants stated that in their opinion the court would hold that Mr. Post as a small stockholder should not be allowed to interfere with the policy of his company, so long as this has been free from fraud and deception.

**ANNUAL CONVENTION.** The thirtieth annual convention of the Federation was held at St. Louis, November 14 to 26. Considerable discussion was given to the use of the boycott, especially the proper occasions, the extent to which local disputes should be supported by general union action, and the authority to control. The Executive Council of the Federation was given extensive authority over unfair lists. The new Railroad Employees Department and the Union Label Trades Department reported excellent progress. This latter association had begun the organization of union label leagues among women workers. It reported over forty international unions, having in all 500,000 members, and issuing union labels, store cards, and buttons.

**CONFLICT WITH STEEL CORPORATIONS.** Following the instructions of a conference called by the Federation at Pittsburg in December, 1909, a committee there appointed waited upon President Taft and various State governors in January with charges against the United States Steel Corporation. The Corporation was declared to be an illegal combination in restraint of trade; and was charged with favoring cheap alien labor, with exploiting its workers, and with reckless sacrifice of human life. An investigation was requested. Congress ordered an investigation into labor conditions at Bethlehem following the strike there (see *STRIKES AND LOCKOUTS*). Meanwhile the organizers of the Federation were combining the workers in the iron and steel industries under the Amalgamated Iron, Steel, and Tin Plate Workers' Association. An appeal to carry forward this plan and to finance a trade war with the iron and steel trade employers was made in January,

asking for ten cents per member from every trade union in the country.

**MEMBERSHIP.** The total membership of the unions affiliated with the Federation in September, 1910, was 1,642,000, a gain of 218,000 for the year, and exceeding the membership of any year except 1904. There were included 120 international unions, with about 28,000 local unions; other bodies affiliated were 39 State federations, 632 city central bodies, 431 local trade unions, and 216 federal trade unions. The larger bodies reported an average membership in 1909 as follows: United Brotherhood of Carpenters and Joiners, 164,000; United Mine Workers, 267,000; Brotherhood of Painters, Decorators and Paperhangers, 59,600; United Garment Workers, 53,400; United Brewery Workmen, 40,000; Cigarmakers' International Union, 39,800; International Association of Machinists, 48,400; and American Federation of Musicians, 39,400. For important decisions in 1910 see INJUNCTION.

**LABOR EXCHANGES, UNITED STATES.** Following the panic of 1907 and the great amount of unemployment in the United States there was considerable agitation in favor of a system of national employment exchanges. Nothing was accomplished except the formation of the Division of Information in the Immigration Bureau for the better distribution of aliens, and a considerable education of the public in the needs and advantages of an efficient organization of the means of getting men and jobs together.

THE NATIONAL EMPLOYMENT EXCHANGE was organized in New York City in 1909 under the leadership of Jacob H. Schiff and the Russell Sage Foundation. It was the result of an extensive investigation by Dr. Edward T. Devine into numerous State, philanthropic and commercial employment agencies throughout the country. A capital fund of \$100,000 was subscribed by private persons to guarantee its success. While it is designed primarily to give the worker the best service for the least possible charge, it is not a charitable enterprise and is expected to be self-supporting soon. It is intended rather to compete with agencies operated for gain and exploiting the helplessness of the unemployed. It has two downtown offices for laborers at 14 State Street and 211 Grand Street, and a general commercial and mercantile bureau at 47 W. 42d St. The hope of the founders is that similar exchanges will be started in all large cities.

**STATE ACTION.** Massachusetts appointed a commission to study the legal status and efficiency of all kinds of employment agencies. It is to make recommendations to the 1911 legislature, giving special attention to means of supplying farm laborers. New York placed all employment agencies for industrial workers under the inspection of the commissioner of labor, with whom they are required to register. It also created in the State Labor Department a Bureau of Industries and Immigration to ascertain the demand for and supply of immigrant labor, to inspect labor camps, and to aid in placing such labor.

**LABOR EXCHANGES IN GREAT BRITAIN.** Under a law of 1909, eighty labor exchanges were opened throughout Great Britain on February 1, 1910. For this purpose the country was divided into twelve divisions, with divisional clearing houses at London, Glasgow, Dublin,

Cardiff, Manchester, Liverpool, Newcastle, Leeds, Sheffield, Birmingham, Nottingham and Bristol. In addition, a national clearing house was established at London. Returns are made regularly from all exchanges in each district. These indicate the number of applications made, the situations filled and those still open. Divisional reports are sent regularly to the national clearing house. On the basis of the information thus exchanged surplus labor at any point will be made available for work at any other. Provision is made for the payment of transportation expenses, to be deducted from earnings. Separate rooms in the exchanges are provided for men, women, and juveniles. Advisory committees of masters and men are organized in local centres. The law provides that none are to be disqualified for refusing to work where there is a strike or for less than the current rate. False representations to obtain work are punishable by a fine of \$50. The system was inaugurated under the leadership of W. H. Beveridge, author of *Unemployment, a Problem of Modern Industry*, and chairman of the London exchange of the Central (Unemployed) Body. Sites for exchange buildings were being purchased and a general plan of construction to be carried out during ten years was inaugurated. Divisional superintendents begin with a salary of \$2000, increasing annually until \$3000 is reached. The expenses aside from the erection of buildings were estimated at \$500,000 for the first year.

An important phase of the development of these exchanges was the proper safeguarding of the interests and welfare of children. Special provision was made in the law for juvenile workers, particularly those just leaving school. In London an Advisory Committee on Juvenile Employment was formed in connection with the exchanges, including representatives of the local school authorities. The object was to secure coöperation between the boards of education and the labor exchanges; and to prevent the recruiting of casual laborers by training young workers to rely on the exchanges for occasional work.

The Trade Unions were very much concerned regarding the effect of the activities of the labor exchanges on their own development. The various conferences of trade unionists passed resolutions condemning the conduct of the exchanges during strikes; and a deputation from the Trades Unions Congress in September waited upon the President of the Board of Trade to inquire whether, in the event of a strike, employers would be able to use the exchanges to recruit a non-union labor supply. It was stated that every effort would be made to keep the exchanges out of politics; that in labor disputes the exchanges would post notices of either side but would favor neither. Experience was too short to determine whether the exchanges would prevent further labor organization; would promote strike breaking; or would be of benefit exclusively to the casual or lower grades of unskilled laborers leaving the trade unions unaffected.

By September, 105 exchanges had been opened. Reports from 103 showed 73,604 applicants, of whom 10,697 were women. Employers reported in July 39,746 vacancies, of which 85 per cent. were filled. The average number of person placed had reached 5000 weekly by September. The number of ex-

changes was being increased to 240 as rapidly as possible.

**LABOR LEGISLATION.** The International Association for Labor Legislation met at Lugano, Switzerland, September 26-28. The congress was attended by 112 delegates from 20 countries. The American Association for Labor Legislation, composed of 1400 members, sent five delegates and the United States government, which contributes to the support of the International Labor Office at Basel, Switzerland, was represented by Commissioner of Labor Charles P. Neill. The representatives from the 13 supporting governments are not entitled to vote. After thorough study of one subject after another the Association recommends either national legislation or international treaties. Each section drew up resolutions which were later accepted, modified, or rejected by the general assembly of all. The resolutions of 1910 dealt with the night work of young persons; the definition of the eight-hour shift in mining; home work; hours of work in the machinery-made embroidery industry; phosphorus poisoning; lead poisoning; caisson disease; workmen's insurance; and the execution of labor laws. The Association voted that steps be taken to secure international treaties prohibiting night work by young persons, and limiting to ten hours the working day of women and young persons. A special commission was authorized to prepare a memorial on these subjects. As the most effective means of checking the evils of home work, the Association recommended the establishment of trade boards similar to those created by the English Parliament in 1909; it declared that these boards should be authorized to establish minimum rates of pay for home workers, to extend rates made by collective bargaining to persons and places not included in the contract, and to apply these same rates to factory workers engaged in the same kinds of manufacture. It declared that insufficient wages should be made null and void and the payer subjected to penalty. Based on the careful study of the wide-spread harmful effects of white-lead poisoning and the utility of substitutes, was a resolution demanding the prohibition of the use of white lead for indoor painting. The secretary at Basel is Prof. Stephan Bauer.

**THE AMERICAN ASSOCIATION FOR LABOR LEGISLATION** held conferences during the year on industrial accidents, industrial or occupational diseases (q. v.), and labor legislation. It has done much to advance State legislation on the subject of employers' liability (q. v.), the regulation of hours, and conditions of labor in dangerous trades. For more than a year it has given special attention to the disease due to white phosphorus poisoning in the match industry and at the close of the year had before Congress the Esch bill prohibiting the use of that poison. Its office has been moved from Madison, Wis. to 1 Madison Ave., New York City. Its president is Prof. Henry W. Farnum of Yale and its secretary is Dr. J. B. Andrews.

**FEDERAL AND STATE LAWS.** Legislation relating to Child Labor, Employers' Liability, including Workmen's Compensation, Occupational Diseases, Labor Exchanges, Old-Age Pensions and Women in Industry is referred to under those headings.

**FACTORY INSPECTION.** Massachusetts appointed a commission to report on this subject

to the next legislature. Rhode Island increased the number of inspectors from two to five; one must be a woman.

**SAFETY AND SANITATION.** New York authorized the commissioner of labor to order the walls and ceilings of workrooms whitewashed at his discretion. He may also order the removal of any obstruction of doors or windows. It required the provision of sanitary waste and refuse receptacles and cuspidors; and forbade spitting except in cuspidors. It ordered that machine operators be supplied with belt throw-offs, with hoods and pipes for grinding, polishing, or buffing wheels, with saw guards and with fans running while machines are in use. Suitable washrooms, separate toilet rooms for each sex, dressing and emergency rooms for female employes with at least one window opening to the outer air must be provided. Virginia required separate toilets in industrial and mercantile establishments employing two or more persons of each sex. Massachusetts required the equipment of weaving and spinning establishments with wet and dry bulb thermometers the readings of which three times per day must conform to the standards of relative humidity. Ohio required railroads to fill frogs, switches and crossings so as to prevent any one from getting his foot caught in the angles. Ohio and Virginia required railroad cabooses to be equipped with doors and platforms at each end. Congress required railroads to increase safety devices and authorized the Interstate Commerce Commission to designate standards for such.

Several laws relating to the safety of mine workers were passed. Illinois requested its governor to appoint a commission of seven to establish three mine rescue stations; \$75,000 was appropriated for the first year's expenses. Coal mines must be equipped with water pipes and hose, with sprinklers, pails and barrels of standard size, with standard fire extinguishers, and with telephones and fire gongs. A corps of mine inspectors is provided. Kentucky authorized the purchase of six sets of life-saving apparatus of the latest design, and provided for the maintenance of such apparatus at convenient points. New York required accidents in mines, quarries, tunnel work, and factories to be recorded and reported within 48 hours to the commissioner of labor.

**RELIEF FOR MINES.** Illinois appropriated \$100,000 for the relief of the victims of the Cherry Mine disaster. In Alleghany and Garrett counties, Maryland, funds for the relief of workmen injured in coal mines or clay banks are created by an assessment of 27 cents per month on each employe. These are deposited with the county treasurer and administered by the county commissioners. Payments are provided as follows: For death within one year, \$1500; for entire loss of sight, \$750; for loss of one eye, \$375; for loss of both hands, \$750; for loss of one hand, \$375; for injury incapacitating for work, \$6 a week for one-half year. A somewhat similar law of Montana passed in 1909 and effective October 1, 1910, created a fund for the insurance of mine workers against death or total disability from accidents while at work; this fund is contributed by employes and workers.

**HOURS.** Kentucky penalized the employment of laborers or mechanics on public works for more than eight hours per day except in extra-

ordinary emergency. New York limited the work of drug clerks to 70 hours per week in all cities of the first class. Congress definitely extended the eight hour law of 1892 to all construction work on navy vessels, no matter if contract for same be let to private concerns.

**TRADE UNIONS.** Maryland required the affixing of the union label to all public printing. South Carolina penalized the counterfeiting or imitating of a union label by \$100 fine or three months' imprisonment. Massachusetts required employers who advertise for workmen during strikes or lockouts to specify the condition that exists.

**MINIMUM WAGE BOARDS IN GREAT BRITAIN.** An Act passed very late in 1909 and becoming effective early in 1910 known as the Trade Boards Act, was patterned after the minimum wage legislation of Australia. It authorizes the formation of special trade boards in the tailoring, lace making, box, and chainmaking industries. The Board of Trade is authorized to select a chairman and a secretary, and to appoint not more than one-half of the members of such a board. Employers and workers must be equally represented; and if women are employed the board must include a woman. These trade boards will consider any matters relating to the industrial conditions of a given trade upon reference from the government. Their specific duty is to fix a minimum wage for piece and time work in the trades mentioned. A fine of \$100 is imposed for each offense against the rulings of a board, and of \$25 a day for each offense if continued after conviction. The law permits the payment of incapacitated workers at rates less than the minimum standard. The burden of proof of the payment of full wages is placed upon the employer. The first attempt at application resulted in a strike of women chainmakers, for an account of which see **STRIKES AND LOCK-OUTS**.

**LABOR PARTY.** See **GREAT BRITAIN, History**.

**LABUAN.** An island off the northwest coast of Borneo, belonging to Great Britain and administered by the governor of the Straits Settlements (q. v.). Area, 30¼ square miles; population (mostly Malays), about 8411. Capital, Victoria (1500 inhabitants). There are extensive coal beds. The budget is included with that of Singapore.

**LADD, G. T.** See **LITERATURE, ENGLISH AND AMERICAN, Philosophy and Religion**.

**LADIES' GARMENT MAKERS OF AMERICA, INTERNATIONAL.** See **BOYCOTT**.

**LADRONE, OR MARIANNE, ISLANDS.** A group of islands in the western Pacific, administratively attached (excepting Guam, q. v.) to German New Guinea (q. v.). Area of German islands, 250 square miles; population (1904), 2646. Imports and exports are included with those of the Caroline Islands.

**LA FARGE, JOHN.** An American artist and man of letters, died November 14, 1910. He was born in New York City in 1835. His father was a French naval officer and his mother was the daughter of a Santo Domingo planter. The son early in life showed artistic aptitude and was taught drawing by his maternal grandfather. While still a youth he went to Paris to study art as an accomplishment and entered the studio of Couture. The latter recognized his talent at once and recom-

mended him to go away and work by himself, which he did. He made drawings from the great Italian artists and studied in Munich, Dresden and England. He then returned to New York and entered the office of a lawyer, in the meantime continuing with his painting. He formed a friendship with William M. Hunt, with whom he went to Newport. Even before his studies abroad he had been interested in architectural decoration, and his first paintings were of religious subjects, and decorative work. He also painted flowers, portraits and landscapes and for a short time made illustrations for books and magazines. His first work as an artist, however, was done in mural painting and his first great opportunity came in 1876 in the decoration of Trinity Church, Boston. He next painted the decorations for St. Thomas's Church and the Church of the Ascension, New York City. He also did mural decoration for churches and residences in Boston, Chicago, Cleveland, Philadelphia, Washington and other cities. Early in his career he became interested in stained glass, for which he invented the new methods known in Europe as "American." By these he changed and reformed the entire art of the glass stainer, from the making of the glass by new methods to the painting of it. In 1869 he was admitted to the National Academy. He was President of the Society of American Artists when it amalgamated with the former institution. He was also President of the Society of Mural Painters, honorary member of the American Institute of Architects and an officer of the Legion of Honor. Mr. La Farge possessed a strong and vivid personality. During the greater part of his life he was compelled to struggle with physical infirmities but in spite of this he became probably the most prominent of American artists. He wrote much for periodicals on subjects dealing with art and was the author of *An Artist's Letters from Japan, Artist and Writer and Lectures on Art*.

**LAFAYETTE COLLEGE.** An institution of higher learning at Easton, Pa., founded in 1832. In the year 1909-10 the number of students enrolled in the several departments of the college was 464 while the faculty numbered 41. During the year a course of mechanical engineering was started and Professor John A. Ross, Jr., was appointed its head. Among the noteworthy benefactions during the year was one of \$65,000 from Andrew Carnegie and \$10,606 from the General Education Board. The productive funds of the college amounted to \$613,429 and the income to \$99,160.

**LA FOLLETTE, SENATOR.** See **WISCONSIN and UNITED STATES, Congress**.

**LAKE MOHONK CONFERENCE.** See **ARBITRATION, INTERNATIONAL**.

**LAMAR, JOSEPH RUCKER.** An American jurist appointed by President Taft in 1910 an Associate Justice of the United States Supreme Court. See **UNITED STATES, Federal Judiciary**. He was born in Ruckersville, Ga., in 1857, the son of L. Q. C. Lamar, a prominent jurist of Georgia. He was educated at the University of Georgia, at Washington and Lee University and Bethany College. He was admitted to the bar in 1879 and from that year until 1903 he practised at Augusta, Ga. From 1886 to 1889 he was a member of the Georgia House of Representatives. In 1895 he was appointed one of the commissioners to codify the laws of the State. He was appointed an as-

sociate justice of the Supreme Court of Georgia in 1903, and continued in that position until his appointment to the United States Supreme Court. Justice Lamar is widely known as a jurist of unusual legal attainments, great energy, and unflinching moral courage.

**LAMBERT, LOUIS A.** An American Roman Catholic clergyman and scholar, died September 25, 1910. He was born in Allenport, Pa., in 1835. He was educated at St. Vincent's College, and the Diocesan Seminary at St. Louis. In 1859 he was ordained priest. During the Civil War he was chaplain of the 18th regiment of Illinois Infantry. After the war he became professor of normal theology and philosophy at the Paulist Novitiate. In the early 80's he became involved in a controversy with Robert G. Ingersoll and his replies to that famous infidel were published in book form. A disciple of Ingersoll replied and Dr. Lambert retorted with a pamphlet entitled *Tactics of Infidels*. This was used by the Y. M. C. A. About this time the late Bishop McQuaid of Rochester refused to assign Dr. Lambert to parochial duty in his diocese and the latter carried the matter to Rome for the Pope to adjudicate. The Papal decision was in his favor. He was then assigned to the rectorship of the church of the Ascension at Scottsville, N. Y., where he remained until the time of his death. Shortly before he died he celebrated the golden jubilee of his ministry. He was for many years the editor of the *Freeman's Journal*, a Roman Catholic weekly.

**LAMSON, MRS. G. L.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**LAND DENUDATION.** See GEOLOGY.

**LAND FORMATIONS.** See GEOLOGY.

**LONDON, MELVILLE DE LANCEY.** An American humorist, widely known under the pen name "Elie Perkins," died December 16, 1910. He was born at Eaton, Madison county, N. Y., in 1839. He graduated from Union College in 1861 and soon after obtained a position in the Treasury Department. At the beginning of the Civil War he helped organize, and became a member of, the Clay Battalion. He resigned from the army in 1864 with the rank of major. After leaving the army he engaged in cotton planting in Louisiana and Arkansas. In 1867 he spent a year in travel and was then appointed Secretary to the American Legation in St. Petersburg. While there he did a considerable amount of writing and when he returned to the United States in 1870 he published his first book, *Saratoga in 1901*, a humorous prophecy. A second book, *The History of the Franco-Prussian War*, followed. Shortly after his return to the United States he became the head of the New York News Association and began contributing humorous articles to various newspapers. He also began a career on the lecture platform which did not close until with advancing age his health failed him. The first of his writings which attracted wide attention was *Wit, Humor and Pathos*, published in 1875. Among his other works are *Wit and Humor of the Age* (1880); *Kings of Platform and Pulpit* (1887); *Thirty Years of Wit* (1890); *Eli Perkins on Money—Gold, Silver and Bimetallism* (1895).

**LANDS, PUBLIC.** For an understanding of recent aspects of public land questions, especially in relation to the kindred subject, conservation of national resources, it is recom-

mended that in connection with the following article be read the article CONSERVATION.

**EXTENT OF THE PUBLIC LANDS.** The original area of the public lands including the various cessions and purchases made to and by the government was in round numbers 1,835,000,000 acres. The area of unappropriated and unreserved public lands in 1910 is shown by States and Territories in the following table:

**AREA OF PUBLIC DOMAIN UNAPPROPRIATED AND UNRESERVED, BY STATES AND TERRITORIES**

	Acres
Alabama .....	108,210
Alaska .....	368,014,735
Arizona .....	41,491,369
Arkansas .....	512,705
California .....	24,864,884
Colorado .....	21,726,192
Florida .....	453,009
Idaho .....	24,743,804
Kansas .....	137,180
Louisiana .....	88,911
Michigan .....	107,890
Minnesota .....	1,563,302
Mississippi .....	47,058
Missouri .....	2,510
Montana .....	36,015,943
Nebraska .....	1,879,486
Nevada .....	56,474,688
New Mexico .....	36,454,692
North Dakota .....	1,410,225
Oklahoma .....	5,007
Oregon .....	17,580,573
South Dakota .....	4,562,804
Utah .....	35,955,554
Washington .....	3,196,059
Wisconsin .....	14,460
Wyoming .....	34,575,159
Total .....	711,986,409

**POLICY OF DISPOSITION OF PUBLIC LANDS.** The national policy regarding the public domain has been uniformly exercised in the disposition of the public lands as follows: First, in reserving out of the public domain such parcels of public lands as may be necessary for the common defense or the general welfare, including military and naval reserves, Indian reservations, national parks, lighthouse reserves, forest reserves, national monuments, etc., consisting of approximately 300,000,000 acres; second, by granting public lands in aid of national improvements in works, such as railways and the promotion of educational and charitable purposes; third, by grants for bounties to soldiers and sailors in recognition of service in defense of the government, and donations in satisfaction of other special services which equity or merit would commend; and fourth, in selling or disposing of the remainder to private citizens under such regulations as Congress finds necessary for securing titles to bona fide settlers or purchasers.

**ADMINISTRATION OF PUBLIC LANDS.** During the last administration of President Roosevelt public opinion began to be seriously concerned with the abuses in the acquiring of public lands by which the government and the people were being defrauded of their chief asset. This public opinion crystallized into the general movement for the conservation of natural resources, and found its first expression in the Conference of Governors called together by President Roosevelt in 1908. See CONSERVATION.

In order to prevent compulsory seizure, for alleged agricultural purposes, of lands which had greater value as coal or oil lands and power sites, President Roosevelt by the exercise of the executive power withdrew from entry large tracts of such lands. It was alleged that

these acts were without legislative sanction and President Taft, as one of the first acts of his administration, asked for the enactment of laws which would give him power to withdraw such lands as came within these classes. This authority was given by an act passed in the second session of the 61st Congress.

**LAND WITHDRAWALS.** The law referred to above became effective on June 25, 1910. The President almost immediately began withdrawals under the authority thus vested in him. His first order of withdrawal on July 3 covered 8,495,731 acres, situated and classified as follows: Water power sites: Arizona, 107,550 acres; California, 47,819 acres; Colorado, 201,549 acres; Idaho, 230,971; Montana, 122,315 acres; Nevada, 14,501; New Mexico, 14,536 acres; Oregon, 176,721 acres; Utah, 379,912 acres; Washington, 55,439 acres; Wyoming, 103,396 acres; in all, 1,454,499 acres. Phosphate lands: Florida, 27,400 acres; Idaho, 1,102,317 acres; Utah, 107,545; Wyoming, 1,381,851 acres; in all, 2,594,113. Petroleum: Arizona, 230,400 acres; California, 2,482,750; Colorado, 87,474 acres; Louisiana, 314,720 acres; New Mexico, 419,901 acres; Oregon, 74,849; Utah, 581,564 acres; Wyoming, 255,461 acres; in all, 4,447,119 acres. At the same time the President withdrew all the public lands in the Alaska national forests which contain workable coal, thus confirming the order made in 1906. On July 7 he withdrew 35,073,164 acres of coal lands situated as follows: North Dakota, 17,828,182 acres; Florida, 6,191,161 acres; Utah, 5,814,287 acres; South Dakota, 2,970,287 acres; Washington, 2,207,967 acres; Arizona, 161,280 acres. Of the land withdrawn, 14,374,695 acres had been withdrawn by President Roosevelt.

On July 14, President Taft ordered additional withdrawals of coal lands, making a total of 71,518,588 acres, distributed as follows: Arizona, 161,280 acres; Colorado, 6,191,161 acres; Montana, 20,208,865 acres; New Mexico, 2,944,279 acres; North Dakota, 17,828,282 acres; Oregon, 192,562 acres; South Dakota, 2,870,287 acres; Utah, 5,814,287; Washington, 2,207,967 acres; Wyoming, 13,099,718 acres. All this land is open to agricultural entry, but with limited surface patent. The entire appraised value of the coal lands is \$449,876,208. The area of coal lands in Alaska affected by the President's orders is 7700 acres. Examination and classification by the Geological Survey caused the restoration of 1,306,655 acres, which had been withdrawn as coal lands, but which contain no coal. In Louisiana, 1,036,800 acres, withdrawn as oil lands, were restored as containing no oil.

This law made valid the withdrawals made under executive act by President Roosevelt. Other measures passed by the 61st Congress relating to public lands and conservation will be found mentioned in the article CONSERVATION.

**COAL LANDS.** Matters relating to the Alaska coal lands will be found in the section under that title below and for an account of the developments in the Ballinger-Pinchot controversy in its political aspect, see the article UNITED STATES, section on *History*.

On July 1, 1910, there were withdrawn from entry 54,461,774 acres of coal lands. Subsequently, withdrawals were made as mentioned above until the amount withdrawn by the end of December, 1910, was 81,449,223 acres. These

lands must be properly classified by the United States Geological Survey before they can be sold or opened for settlement. At the end of 1910, 14,688,839 acres had been appraised as coal lands. This was valued at \$625,944,830. A total area of 33,908,199 acres had been classified as non-coal lands.

Secretary Ballinger in his annual report declares that the most advantageous method of disposal of coal deposits is to be found in the measure authorizing the lease or sale thereof, subject to forfeiture for failure to exercise the rights guaranteed with restrictions on mining operations, in order to conserve the deposits as a public utility. It is known that President Taft differs from Secretary Ballinger in believing that the government should lease its coal lands rather than sell them.

**OIL LANDS.** The oil lands withdrawn from entry on June 30, 1910, amounted to 4,556,988 acres. Subsequent withdrawals raised this area by the end of 1910 to 4,487,819 acres. There were restored 20,424 acres. The public oil lands are, by an act of Congress, February 11, 1897, declared to be placers and are open to location and entry under the general placer mining laws. This act has proved wholly inadequate in its application to petroleum and oil lands. Under the general placer law, no valid claim can be located without discovery of mineral. Mineral is usually discovered on the surface of the so-called placer ground without much expense or time. It is not so with oil, which takes from six months to a year before an actual discovery can be made. Secretary Ballinger in his annual report recommends that this law shall be so amended as to protect the first bona fide locator and give him a reasonable time to make his discovery. The act of June 25, 1910, contained a proviso that the rights of any person who, at the date of any order of withdrawal heretofore or hereafter made is a bona fide occupant or claimant of oil or gas bearing lands, and who at such date is at diligent prosecution of work leading to the discovery of oil or gas, shall not be affected or impaired by the order of withdrawal so long as he shall continue in the prosecution of the work. The Secretary of the Interior recommends that Congress be asked to pass a law recognizing the right of the prior bona fide locator to the exclusive possession of his claim for a reasonable time for the prosecution of his work for the discovery of oil, or upon discovery a right to secure patent. Contrary to his belief as regards coal lands, Secretary Ballinger believes that oil lands should be leased.

**WATER POWER SITES.** On January 30, 1910, there were withdrawn from entry for water power sites lands amounting to 2,479,756 acres. The withdrawals on July 1, 1910, amounted to 1,454,499. Additional withdrawals, amounting to 37,972 acres, were made between July 1, 1910, and November 1, 1910, and restorations were made amounting to 40,662 acres, leaving the total withdrawals outstanding November 1, 1910, 1,451,809 acres. These lands are withdrawn pending legislation. The Secretary of the Interior recommends the passage of a bill authorizing the supervision of these lands by a leasing system. During the 61st Congress a bill was introduced authorizing the President to withdraw from all forms of settlement, entry or other disposition, any lands which are or may become chiefly valuable for the development of water power, and providing for the acquisition of any

State or Territory, under certain conditions, of any land so withdrawn. The object of this bill was to transfer these sites to the States under limitations which will compel them to retain title thereto and to secure and supervise their hydro-electrical development in behalf of the public. The bill provides for Federal enforcement and compliance by the States with the terms, conditions, and limitations of the grant, by stipulating for the reversion of the lands to the Federal government upon the failure by the States to comply therewith. This measure did not come up for passage during the session of Congress.

**PHOSPHATE LANDS.** There were withdrawn from public entry on July 1, 1910, 2,579,756 acres of phosphate land. President Taft subsequently withdrew 35,719 acres and restored 1280 acres, making the total withdrawals outstanding November 1, 1910, 2,514,195 acres.

**LAND FRAUDS.** During the year ended July 30, 1910, there were received by the Land Office 37,811 cases of land frauds. During the same period 46,153 cases were investigated and 43,554 cases were closed. Four hundred and sixty-six civil and criminal convictions were found and \$227,211 was tendered for settlement of trespasses on the public domain. As a result of investigations 4665 entries were cancelled and 12,065 acres were restored through proceedings for the removal of unlawful enclosures.

**LAND ENTRIES.** During 1910, 72,802 patents for entries for land were issued and the total area entered was 26,392,026 acres. A total of 167,804 entries of all classes was made. Of these 98,598 were for homesteads, 15,620 were for desert land, 1114 for mineral land and 248 for coal land.

**SALES OF LANDS.** The total receipts for the sales of public lands during the fiscal year 1910, including fees and commissions, were \$8,371,637; from the sales of Indian lands, \$2,037,551. The receipts from other sources brought the total to \$11,463,924.

**ALASKA PUBLIC LANDS.** The situation in respect to the coal lands of Alaska remained unchanged in 1910. No legislation was passed by Congress providing for the opening or leasing of these lands and practically no coal was mined in the Territory during the year. On July 3, President Taft ordered the withdrawal of 495,731 acres of water power sites and phosphate and petroleum lands, and in November, by order of the President, all the coal lands in the Territory were withdrawn from settlement.

A bill was introduced by Senator Beveridge in February, withdrawing from entry all public coal lands in Alaska, but providing that they may be leased for thirty years on a royalty basis, no tract to exceed 2560 acres. These leases, it was provided, were not to interfere with the patenting of the surface for agricultural purposes. In introducing this bill Senator Beveridge made the assertion that \$2,000,000,000 was not too high an estimate of the value of Alaska's coal deposits. He said that the Matanuska field and the Behring River field, of which the famous Cunningham claims were the richest part, together contained two billion dollars' worth of coal. In addition to this the Geological Survey report showed that there were other fields of an area of 12,867 square miles, in which the coal contents were estimated at more than 15,000,000,000 tons,

which might be worth \$15,000,000. His statements were based, to a large extent, upon testimony given before the Senate Committee on Territories. Before this committee there appeared voluntarily two representatives of the Guggenheim-Morgan syndicate, Stephen Birch, manager of the syndicate, and John N. Steele, the general counsel. The avowed purpose of these witnesses was to show that the holdings of the syndicate had been exaggerated in various publications. They admitted that the syndicate had taken an option on the Cunningham coal claims, agreeing to pay \$250,000 for a half interest if patent could be obtained. These claims probably covered 50,000,000 tons of coal which could be mined for a profit of \$25,000,000.

The syndicate, they declared, is in a coal field which probably contains 500,000,000 tons, having a gross value of \$900,000,000 and a net value of \$200,000,000. The syndicate, it was asserted, had spent \$10,000,000 on the Copper River Railway and was about to spend \$5,000,000 more. In addition to its railway it was shown that the syndicate owned stock in the Northwestern Commercial Company which owned steamships and a salmon cannery. It was also interested in other canneries and owned one copper mine. The only coal interest of the syndicate, it was claimed, was included in the Cunningham option. It was pointed out that the syndicate was obliged to buy coal in British Columbia at \$12 a ton and send it to Alaska, because no one was permitted to mine the coal lying beside its railway tracks.

In November three indictments charging conspiracy to defraud the government of more than 20,000 acres of coal lands in Alaska, valued at \$20,000,000, were returned by the Federal grand jury in Spokane against six men who control the claims of 131 persons in the Kayak mining field. Among those indicted were Harry White, formerly mayor of Seattle. Many other prominent business men of Spokane and Seattle were also among those indicted. It was charged that the indicted men employed many of the 131 men who filed claims or had an agreement with them.

**LANDSCAPE ARCHITECTURE.** See ARCHITECTURE.

**LANDSTURM.** See AUSTRIA-HUNGARY, and GERMANY, Army.

**LANDWEHR.** See AUSTRIA-HUNGARY, and GERMANY, Army.

**LANGUAGE.** See ANTHROPOLOGY AND ETHNOLOGY, paragraph *American Languages*; PHILOLOGY, CLASSICAL; PHILOLOGY, MODERN.

**LANGUAGE, INTERNATIONAL.** The question of an international language is being constantly discussed, although the public interest in the subject is not general.

A. Dauzat, a linguist of some repute in France, has once more proposed French as the international language, taking up again the arguments of the Russian writer Novicow in his book: *Le Français, langue internationale d'Europe* (Paris, 1910). The author met with encouragement some years ago when he had proposed the same solution. Dauzat's article came out in *La Revue* of July 1, 1910. The result was that Dr. Molenar, up to then a protagonist of artificial language, leader of the system called "Universal" (which at one time nearly conquered Esperanto), joined the advocates of a natural language, saying that he had come to the conclusion that while an artificial language was by no means impossible, there

were too many practical difficulties. This little movement, however, has subsided, and at the end of the year we see that the chief contestants are the *Esperantists* and the *Idists* (representatives of Ido, a more consistent form of Esperanto).

As regards the external progress of Esperanto, it is gaining ground in Germany (among business people and Socialists) and somewhat in Central America; but not in France, nor in Russia, nor in the United States; almost everywhere it is stationary. The International Congress of Dresden (1908) counted 1500 adherents, that of Barcelona (1909) 1300. Since 1908 the *Bureau international de bibliographie*, in Brussels, has adopted "en principe" Esperanto as "second language." Messrs. Cook & Sons, and other traveling agencies have joined the society, and the *Universal Esperanto Asocio* publish traveling books (*guidiloj*). A *Pedagogio Revuo* has been founded for teachers.

We may mention a pamphlet by Antido (M. de Saussure, the scientist of Geneva, editor of the *Sciencia Internacia Revuo*). Under the title of *La construction logique des mots en Esperanto* (Geneva, 1910) he answers Couturat's famous little work *Sur la dérivation en Esperanto* (Paris, 1907). Couturat points out the looseness of Esperanto in the application of its principle of formation and insists upon consistency and thus simplicity. Antido answers that expediency requires sometimes the relinquishment of rigid logical formation.

**LANSDOWNE**, Lord. See GREAT BRITAIN, *History*.

**LANTHANUM**. See ATOMIC WEIGHTS.

**LAOS**. The largest of the five territories of French Indo-China (q. v.); a French protectorate. Estimated area, about 111,940 square miles: population (estimated 1906), 663,727. Capital, Vientiane. Laos includes the three protected states of Luang Prabang, with its capital Luang Prabang, the residence of the king (Som-Deek Phra Chao Sisawong); Bassac; and Muong Sing. The soil is fertile, but the country is undeveloped and lacking in population; it is practically inaccessible except by the Mekong River, and this river is barred at Khone by rapids. Rice, cotton, indigo, tobacco, fruits, and teak-wood are the important products; and the mines yield gold, tin, lead, and precious stones. The towns on the Mekong are connected by telegraph with Hué, in Annam, and with Saigon. Cochinchina contributes six-thirteenths, Tongking and Annam five-thirteenths, and Cambodia two-thirteenths of the cost of administration. Resident superior, M. Maché. Serious difficulties with the natives prevent the successful exploitation of the mining concessions granted to several French companies.

**LA PRELE RIVER DAM**. See DAMS.

**LARD**. See MEAT AND MEAT INSPECTION.

**LASKER**, EMANUEL. See CHESS.

**LATHBURY**, D. C. See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**LATHROP**, JOHN. American jurist, died August 24, 1910. He was born in Boston in 1835 and was educated in the public schools in Dedham, Mass., and at Burlington College, New Jersey, graduating from the latter institution in 1853. He then studied law at the Harvard Law School and graduated in 1855. He was admitted in 1856 to the Massachusetts bar and took up practice, which was abandoned when he enlisted in the 31st Massachusetts

Regiment of which he served as captain in 1862-63. Returning from the war in the latter year he resumed the practice of law. In 1874 he was appointed reporter of the Supreme Judicial Court, which post he filled until his appointment to the bench of the Superior Court in 1888. He was associate justice of the Supreme Judicial Court from 1891 until 1896 when he resigned on account of ill health. In addition to his judicial duties and general practice, he edited several law publications. He was lecturer at the Harvard Law School in 1871-73.

**LATIN AMERICA**. See under different countries, and PAN-AMERICAN UNION.

**LATIN LANGUAGE AND LITERATURE**. See PHILOLOGY.

**LAURIER**, Sir, WILFRID. See CANADA.

**LAUT**, A. C. See LITERATURE, ENGLISH AND AMERICAN, *History*.

**LAWN TENNIS**. The majority of the tournaments held in 1910 broke all records so far as the number of entrants was concerned and in most instances considerable improvement was shown in the general methods of conducting the tournament. The rules governing the matches were also more strictly observed. The only unsatisfactory feature of the season was the failure to hold the international contest for the Davis Cup after all the preliminaries had been arranged. Both Great Britain and the United States challenged Australia, the holder of the trophy, but afterwards it was found impossible to send representative teams such a long distance.

William A. Larned won the national singles championship in 1910 for the sixth time in his career. F. B. Alexander and H. H. Hackett successfully defended their national doubles title and also won the Metropolitan, New York State and other tournaments. Miss Hazel Hotchkiss of California again won the women's national championship title. She was the victor in several Western tournaments. Miss Louise E. Hammond of New York although losing to Miss Hotchkiss in the challenge round of the national championships had a most successful season winning the Eastern States, the Middle States, the Metropolitan and other tournaments. The men's national indoor championship in singles was won by Gustave F. Touchard and in doubles by Touchard and C. R. Gardner. The women's championship in indoor singles was won by Mrs. F. G. Schmitz and in doubles by Miss Marie Wagner and Miss C. Kuttroff. In collegiate circles R. A. Holden, Jr., of Yale was victorious in the singles and Dean Mathey and B. N. Dell of Princeton carried off the laurels in the doubles. A summary of the principal championship and open tournaments of the year follows:

All-Comers' National Championship at Newport, R. I.: Singles (final), T. C. Bundy defeated Beals C. Wright 6-3, 6-3, 6-8, 10-8; challenge match, William A. Larned, holder, defeated T. C. Bundy, challenger, 6-1, 5-7, 6-0, 6-8, 6-1. Doubles—F. B. Alexander and H. H. Hackett, holders, defeated T. C. Bundy and Trowbridge Hendrick, challengers, 6-1, 8-6, 6-3. Clay Court Championship at Omaha Field Club; Singles—Melville H. Long defeated Walter Merrick Hall, 6-0, 6-1, 6-1. Doubles—F. C. Anderson and W. F. Hayes defeated M. H. Long and H. C. Scribner, 2-6, 3-6, 6-1, 6-3, 6-2. Western championship at Onwentsia Country Club, Chicago: Singles—T. C. Bundy defeated

Alfred Ludtke, 6-2, 6-1, 6-0. Doubles—L. H. Waidner and P. E. Gardner defeated J. C. Neely and H. O. Whitman, 6-2, 4-6, 9-7, 6-3. Women's National Championship at Philadelphia Cricket Club: Singles—Miss Louise E. Hammond defeated Miss Adelaide Browning, 6-2, 6-4; challenge match, Miss Hazel Hotchkiss, holder, defeated Miss Hammond, challenger 6-4, 6-2. Doubles—Miss Hotchkiss and Miss Edith Rotch defeated Miss Browning and Miss Edna Wildey, 6-4, 6-4. National Indoor Championship at New York: Singles—Gustave F. Touchard defeated R. A. Holden, Jr., 6-2, 6-1, 3-6, 6-3. Doubles—Touchard and C. R. Gardner defeated W. B. Cregin, Jr., and Miles S. Charlock, 6-1, 3-6, 7-9, 6-1, 6-4. All-England Championship: Singles—Anthony F. Wilding defeated Beals C. Wright (American), 4-6, 4-6, 6-4, 6-2, 6-3; challenge match, Wilding, challenger, defeated Arthur W. Gore, holder, 6-4, 7-5, 4-6, 6-2. Metropolitan Championship at the West Side Tennis Club, New York: Singles—William A. Larned defeated Gustave F. Touchard, 6-0, 6-1, 6-1. Doubles—F. B. Alexander and H. H. Hackett defeated Edwin P. Fischer and Raymond D. Little, 6-1, 7-5, 3-6, 6-2. Women's Singles, Miss Louise E. Hammond defeated Miss Marie Wagner, 6-2, 6-4. Women's Doubles—Miss Elizabeth C. Bunce and Miss Dorothy Green defeated Miss Hammond and Miss Elsie Little, 2-6, 6-2, 7-5. New Jersey State Championship: Singles—F. C. Anderson defeated G. E. Thomas, Jr., 6-3, 7-5, 6-4; challenge match, Richard H. Palmer defeated F. G. Anderson, 7-5, 6-3, 1-6, 8-6. Doubles—Otto H. Hinck and S. Howard Voshell defeated F. G. Anderson and Henry J. Mollenhauer, 6-2, 6-4. New York State Championship at Crescent A. C., Brooklyn: Singles—F. C. Inman defeated C. R. Gardner, 6-3, 3-6, 6-4, 6-3. Doubles—F. B. Alexander and H. H. Hackett defeated C. M. Bull, Jr., and H. C. Martin, 6-8, 8-6, 6-2. Middle States Championship: Singles—N. W. Miles defeated W. F. Johnson, 7-5, 7-9, 6-3, 7-5; challenge match, N. W. Miles, challenger, defeated H. P. Larned, holder, by default. Doubles—F. B. Alexander and H. H. Hackett defeated L. H. Waidner and P. E. Gardner, 6-2, 6-2, 6-3; challenge match, F. B. Alexander and H. H. Hackett, challengers, defeated W. A. Larned and G. L. Wrenn, holders, by default. Southampton Cup Tournament: Singles—M. E. McLoughlin defeated F. C. Colston, 6-2, 6-1, 6-2. Doubles—M. E. McLoughlin and W. A. Larned defeated T. C. Bundy and Trowbridge Hendrick, 8-6, 4-6, 7-5, 5-7, 6-4.

**LAW REFORM.** See CIVIC FEDERATION.

**LAWRENCE, R. V.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**LAW SCHOOLS.** See EDUCATION IN THE UNITED STATES.

**LAWTON, F.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**LAYMEN'S MISSIONARY MOVEMENT.** See MISSIONS, PROTESTANT FOREIGN.

**LAZAROVICH-HREBELIANOVICH, Prince.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**LEAD.** There were smelted in the United States in 1909 457,045 tons of lead as compared with 408,523 tons in 1908. Of the lead smelted in 1909 354,188 tons came from domestic ores and 102,857 tons came from foreign ores. The largest quantity of domestic ore came from Missouri. This amounted to 142,650

tons. Second in production was Idaho, 97,183 tons and the third was Texas, 64,534 tons. Of the foreign ore 69,100 tons came from Mexico and the remainder came from Africa, Canada, Central America, China, Mexico and South America. The refined primary lead produced in the United States in 1909 was 448,112 tons as compared with 396,433 tons in 1908. The consumption of primary lead in 1909 was 370,013 tons and the exports of lead manufactures were valued at \$409,542 in 1909 as compared with a value of \$558,640 in 1908. The production of refined lead in 1910 according to the *Engineering and Mining Journal* was 492,121 tons, of which 401,524 tons were from domestic ore and 90,597 tons were from foreign ore. Missouri strengthened its position as the first of the States in the production of lead, although Idaho showed an increase in the output of 1909. The following table taken from the *Engineering and Mining Journal* shows the average price of lead in New York, St. Louis, and London in 1909-10:

AVERAGE PRICE OF LEAD

Month.	New York		St. Louis		London	
	1909.	1910.	1909.	1910.	1909.	1910
January.	4.175	4.700	4.025	4.582	13.113	13.650
February	4.018	4.613	3.868	4.445	13.313	13.328
March ..	3.986	4.459	3.835	4.307	13.438	13.063
April ...	4.168	4.376	4.051	4.225	13.297	12.641
May ...	4.287	4.315	4.214	4.164	13.225	12.550
June....	4.350	4.343	4.291	4.207	13.031	12.688
July ...	4.321	4.404	4.188	4.291	12.563	12.531
August.	4.363	4.400	4.227	4.290	12.476	12.513
Sept. ...	4.342	4.400	4.215	4.289	12.781	12.582
October	4.341	4.400	4.215	4.271	13.175	13.091
Nov....	4.370	4.442	4.252	4.314	13.047	13.217
Dec. ....	4.560	4.500	4.459	4.363	13.125	13.197
Year .	4.273	4.446	4.153	4.312	13.049	12.920

New York and St. Louis, cents per pound. London, pounds sterling per long ton.

The exports of lead and its manufactures in 1910 were valued at \$2,198,970, while the imports of lead in all forms were valued at \$3,915,252. See ATOMIC WEIGHTS.

**LEATHER.** The industry in 1910 was in marked contrast to the previous year for the absence of tariff agitation or legislation. The slaughter of cattle and sheep at the leading markets is indicated for the year ending December 31, 1910, with the comparison with 1909 in the following table. Totals were estimated at 40 per cent. of the entire domestic supply of slaughtered cattle:

	1910		1909	
	Cattle	Sheep	Cattle	Sheep
Chicago ..	1,741,074	3,735,346	1,662,176	3,501,103
Kans. City	1,284,272	1,186,692	1,335,224	1,172,669
Omaha ....	773,891	1,256,893	727,522	1,186,948
St. Joseph.	353,532	412,767	356,085	483,816
St. Louis..	1,207,811	658,253	866,614	661,886
Sioux City	187,393	71,552	168,390	45,363
Fort Worth	435,435	92,768	478,373	91,719
St. Paul ...	143,934	174,696	121,405	134,495
Total...	6,127,042	7,588,967	5,715,789	7,277,999
Gain over 1909 ...	411,253	310,968		

Notwithstanding that hides had been put on the free list fewer hides and skins were imported in 1910 than in 1909 but more than in 1908. The comparative figures follow:

## IMPORTS OF HIDES AND SKIN

	Pounds	Value
1910 .....	460,607,078	\$ 86,107,728
1909 .....	572,776,503	103,671,277
1908 .....	328,446,882	57,653,781

The largest imports of hides of cattle, amounting to 57,534,654 pounds valued at \$9,952,219, came from Argentine, while Canada and Mexico were also leading sources of supply with 29,955,538 and 31,633,682 pounds respectively.

The exports of sole leather in 1910 amounted to 38,615,004 pounds valued at \$8,419,475, as compared with 32,469,344 pounds valued at \$6,979,545 in 1909.

During the year a movement was being made in England towards buying and selling leather by measurement instead of by weight, using a measuring machine for that purpose which could measure and record the sizes of the skins. An English leather journal in speaking of this proposed change said: "Should this change be come general, we may hope to see the last of leather stuffed with glucose, epsom or barium salts, merely to increase the weight; it is a result much to be desired." Leather loaded with epsom salts tends to make the feet of the wearer cold and causes the leather to offer little resistance to wet sidewalks.

**LE BARGY, M.** See FRENCH LITERATURE.

**LEE, SIDNEY.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**LEES, JAMES.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**LEEWARD ISLANDS.** Islands of the British West Indies, lying north of the Windward group; a British colony made up of the five presidencies of Antigua (with Barbuda and Redonda), St. Christopher (St. Kitts) (with Nevis and Anguilla), Dominica, Montserrat, and the Virgin Islands (qq. v.). Total area (official statistics, 1909), 708 square miles. Population (1901), 127,434; births (1908), 4864 (3006, or 61 per cent., illegitimate); deaths, 3501.

Total number of children on the rolls of the government and state-aided primary schools for the year 1908-9, 26,072; average attendance, 12,181. In 1890, the year of the establishment of compulsory education, there were only 12,000 on the roll, with average attendance, 7000. Government grant (1908), £6861. There are secondary, industrial, and agricultural schools. Total cultivated area, 52,834 acres (Dominica unknown); area under sugar cane, 32,727; area in cacao and lime cultivation cannot be given with any accuracy; under cotton (estimate), 7050. Actual production cannot be ascertained, but the export of sugar in 1908 was 23,572 tons; of cotton, 1,060,996 pounds. Imports for the year 1908 are given officially as follows: From Great Britain, £225,773; British colonies, £99,976; other countries, £221,001; internal trade, £20,843; total, £567,593. Exports: To Great Britain, £159,161; British colonies, £261,529; other countries, £96,777; internal trade, £18,845; total, £536,312. Two private railway lines (16¼ miles) have been put down in Antigua. There is telegraph and cable connection with other countries. Total tonnage entered and cleared (1908), 2,507,357. Revenue and expenditure for the year 1908-9, £154,333 and £146,216 respectively. Public debt, March 31, 1909, £287,240; less amount repaid (£13,-

590), £273,650. The governor and commander-in-chief (1910 Sir Ernest Bickham Sweet-Escott) resides at St. John, in Antigua.

**LEEWARD ISLANDS** (ILES SOUS LE VENT). See FRENCH ESTABLISHMENTS IN OCEANIA.

**LEGAL EDUCATION.** See UNIVERSITIES AND COLLEGES.

**LEGGE, EDWARD.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**LEGISLATION, INSURANCE.** See INSURANCE.

**LEGISLATION, LABOR.** See LABOR LEGISLATION.

**LEGISLATION, RAILWAY.** See RAILWAYS.

**LEGISLATION, STATE.** See GEORGIA; KENTUCKY; MARYLAND; MASSACHUSETTS; MISSISSIPPI; NEW JERSEY; NEW YORK; OHIO; RHODE ISLAND; SOUTH CAROLINA; VIRGINIA; also ILLINOIS; OKLAHOMA; TEXAS; and WASHINGTON.

**LEGISLATURES, STATE.** See different States.

**LE GOFFIC, M.** See FRENCH LITERATURE.

**LEHIGH UNIVERSITY.** An institution of higher learning at South Bethlehem, Pa., founded in 1866. The attendance for the year 1910-11 was 615 and the teaching force numbered 66. Four new courses leading to the degree of bachelor of arts were established during the year: First, a course in which biological and chemical sciences predominate; second, a course in which geological sciences predominate; third, a course in which mathematical and physical sciences predominate; and fourth, a course in business administration. During the year two new laboratories were erected and equipped, the Fritz Engineering Laboratory, and the Eckley B. Coxe Mining Laboratory. The former was the gift of John Fritz, an eminent engineer who was a trustee at the founding of the university in 1866. The building is fully equipped for the testing of the strength of materials, cement, concrete, hydraulics, and road materials. The Eckley B. Coxe Mining Laboratory was so named by the trustees in memory of a leader in the profession of mining engineering and a trustee of the university from its early days. It contains a complete equipment for ore dressing, cyanide plant, with the necessary apparatus and other mining machinery. The total production funds of the university amount to \$1,178,000. The President is Henry S. Drinker, LL. D.

**LEHMANN, LIZA.** See MUSIC.

**LELAND STANFORD, JR., UNIVERSITY.** An institution of higher learning at Palo Alto, Cal., founded in 1887. The number of students in attendance in 1910-11 was 1617, of which number 157 were graduates, 1358 regular undergraduates, and 102 specials. The faculty numbered 229, of which 55 were professors, 25 associate professors, 41 assistant professors, 33 instructors, 72 assistants, and 3 lecturers. Among the notable changes in the faculty during the year were the addition of a professorship in pharmacology, establishing two new divisions in the department of medicine, which the university is gradually developing by taking over the Cooper Medical College of San Francisco. Among the benefactions received during the year was one of \$10,000 from Mr. and Mrs. F. W. West of Seattle for the endowment of a lectureship to be known as the Raymond W. West Memorial lectures on Im-

mortality, Human Conduct and Human Destiny. The first series of lectures will be given by Rev. Charles E. Jefferson of the Broadway Tabernacle, New York City. The expenditures of the education department of the university aggregated about \$500,000. The balance of the income is devoted to the work of restoration of buildings destroyed by the earthquake of 1906. The university derives no income from tuition fees of undergraduate students, requiring tuition fees only in its professional courses and law and medicine. The President is David Starr Jordan.

**LEMAÎTRE, JULES.** See FRENCH LITERATURE.

**LEMBERG, UNIVERSITY OF.** See AUSTRIA-HUNGARY, *History*.

**LEMIEUX, RODOLPHE.** See CANADA, *Government and History*.

**LENÉPVEU, CHARLES FERDINAND.** A French composer, died in August, 1910. He was born at Rouen in 1840 and was educated at the lycée at Rouen for the law, but determined to devote himself to the profession of music. He studied at the Conservatory of Paris, becoming a pupil of Savard, Ambroise Thomas, and Chauvet. In 1865 he won the Prix de Rome with a cantata. He was made professor of harmony in the Conservatory in 1881 and professor of composition in 1893. He was a successful composer and his operas have been among the most popular of modern French compositions. In 1869 he won a prize offered by the Minister of Fine Arts for the comic opera. A four-act grand opera was produced in London in 1882 and in 1886 a sacred drama in three acts, *Jeane d'Arc*, was produced at the Rouen Cathedral. Other compositions include a requiem mass, smaller church numbers, melodies, lyrics, choruses, and orchestra. He was an officer of the Legion of Honor, a member of the Institute and a member of the Superior Council of Musical Education.

**LEOPOLD II.** See BELGIUM, *History*.

**LEPROSY.** The most promising work in the investigation of this disease during the past few years is that of M. T. Clegg of the Bureau of Science, Philippine Islands, who has succeeded in growing the bacillus of leprosy on artificial media. Attempts to cultivate the *Bacillus lepræ* have heretofore been unsuccessful, the organism not flourishing outside of its natural habitat in the tissues. The value of Clegg's work lies in the fact that it not only paves the way for the development of a specific serum, but gives a basis for further investigations into the nature of the disease and its transmission. The bacilli in Clegg's experiments were taken from the spleen of patients recently dead of leprosy, grown in symbiosis with the amoeba and the cholera vibrio and then isolated from these cultures. After isolation in pure culture, the leprosy bacillus was found to be easy of cultivation in an artificial medium. Apparently, true leprosy lesions were produced in guinea-pigs when they were inoculated with the artificial cultures. The specific organism of leprosy resembles somewhat that of tuberculosis, and develops under somewhat similar cultural conditions, but it was found in these experiments that the animals inoculated did not develop tuberculous lesions, but those of true leprosy.

Lepers in the Philippine Islands are not very numerous. The number of cases may be judged

from the quarterly report of the Bureau of Health for the Philippine Islands. In the Culion Colony there were, in 1910, 1681 lepers; at the San Lazaro Hospital, 166; and in the Moro (Mohammedan) Province, 220. In addition there are 205 lepers, according to the Bureau of Health, not yet transferred to Culion. The total number is estimated at 2272 in the entire Philippine Islands, out of a population of 8,000,000. The Culion Leper Colony is on an island of the same name, south of Luzon, and is the great detention camp for Philippine lepers. It has its own civil government, under the direction of the central government, and elects its own administrative officers. It resembles a small agricultural community rather than a public institution.

After four years of research, Dr. P. G. Medina, of Bogotá, has issued a report on the conditions in regard to leprosy in Colombia. He found 3031 cases in the three leper colonies maintained by the state, and 1275 outside of these, most of whom will soon be admitted to a new colony about to be established. Serum therapy and chaulmoogra oil are used in the treatment, the latter giving the most constant and lasting results. Apparent cures have been obtained in many cases. Medical and popular opinion is undergoing a change in regard to the contagiousness and curability of leprosy. Sir Jonathan Hutchinson has long taught that the disease is not contagious. According to this authority, there are never fewer than 100 cases of leprosy in England, and there are about 50 in London itself. No instance of contagion in England is known, in spite of the fact that there is no provision for segregation and lepers go about freely to their daily work. All the cases are imported, having developed in individuals while abroad and living in leprosy districts.

**LEUPP, F. E.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**LEXOW, CLARENCE.** An American lawyer and legislator, died December 30, 1910. He was born in Brooklyn in 1852 and graduated from Columbia University in 1874. He studied afterwards at the University of Jena. He engaged in the practice of law in New York City and became senior member of the law firm of Lexow, Mackellar & Wells. From 1893 to 1898 he was a member of the New York State Senate and was head of the Senate Committee to investigate the city government of New York City. The report of this committee resulted in important reforms in the administration of the government. He introduced into the Senate the bill creating Greater New York. He was also chairman of the joint legislative committee which investigated trusts and unlawful combinations and introduced statutes regulating them. He was chairman of the committee on primary election reform, and introduced a bill regulating party primaries, etc. He was prominent in the Republican politics of the State and introduced the first gold plank in the campaign of 1896. He was a presidential elector in 1900. He was the author of a *Report on the Municipal Government* and a work on *Trusts and Unlawful Combinations*.

**LIBERALS.** See GREAT BRITAIN, *History*.

**LIBERIA.** An independent negro republic on the west coast of Africa. Area, about 35,000 square miles (estimate); population, nearly 1,500,000 (Americo-Liberians, 10,000). The in-

digenous natives belong to the Mandingo (Mohammedan), Kisi, Gola, and Kru tribes. The Kru predominate and are mostly pagans. Capital, Monrovia (6000 inhabitants). The country is undeveloped; the forests, containing valuable timber, are unworked; the fertile soil is uncultivated. The Liberian Rubber Corporation and the Liberian Development Chartered Company (Ltd) are doing much to improve conditions. The ivory trade has been diverted by lack of good roads and intertribal wars to Sierra Leone and the French possessions. Imports (1908), £240,000 (cottons, haberdashery, hardware, salt, rice, provisions, arms and ammunition, glass, rum, gin, timber, and beads); exports, £182,708 (coffee, cacao, palm kernels, palm oil, ivory, piassava, rubber, camwood, and annatto). The trade is largely with Great Britain, Germany, and the Netherlands. There are no railways, and few wagon roads. Revenue (1908), £83,000 (customs, £77,000); expenditure, no estimate given. External debt, £178,250 in 1908; internal bonded debt, £27,000.

The frontier is gradually being effectively policed under British officers; and efforts looking to the establishment of a financial protectorate under British and American control have been made by the Powers controlling adjacent territories—France and Great Britain. The organization of the customs by British officials was carried on rapidly in 1910. The executive is the president (till January, 1911, Arthur Barclay), aided by a council of six. The parliament (of two houses) is the legislative body. Secretary of state (1910), F. E. R. Johnson. Chief inspector of customs and British financial adviser, William J. Lamont.

**HISTORY.** The report of the United States Liberian Commission sent out in the spring of 1909 to investigate conditions in Liberia was transmitted by the President to Congress March 25. The report declared that Liberia was in danger from the pressure of neighboring Powers and that the aid given by British officials in administering the finances had not had satisfactory results. It furthermore declared that the Liberians had shown their capacity for orderly government and that they deserved the assistance of the United States. The report made the following recommendations: That the United States should aid Liberia in the prompt and just settlement of all boundary disputes with Great Britain and France; that it should consent to aid in the refunding of the Liberian debt, and as a guarantee for the repayment of money advanced should assume control of the Liberian customs; that it should aid in the reform of the internal finances sending American financial experts to Liberia for that purpose, and should supply the assistance of American army officers in organizing and drilling a constabulary and police force; and that it should maintain a research station in Liberia and reconsider the question of establishing a naval coaling station there. Conditions in Liberia did not improve after the return of the American commissioners. The reforms demanded by the French and British governments were not carried out, and the French complained of the barbarities of the Liberian militia in dealing with the natives near the French frontier. Native disturbances early in 1910 led to the dispatch of a United States war vessel, under the treaty of 1862, to the disaffected region, and order was restored. In June, the

United States announced its policy toward Liberia, which consisted of the negotiation of a loan from American bankers, to be applied to the payment of the two existing British loans and to the internal loans and building debt. As assurance that the loan would be repaid, the United States government announced that a financial board, comprising members of the interested countries would be appointed, under the presidency of an American. Professor R. P. Falkner, the head of the American commission was appointed special financial adviser. There was opposition in France to this arrangement as infringing on her treaty rights with Liberia, and negotiations between the interested governments took place the latter part of the year, resulting in a plan for financial reorganization under American auspices through a loan contributed in equal parts by American, British, French, and German bankers.

**LIBRARIES.** See **LIBRARY PROGRESS.**

**LIBRARY ASSOCIATION, AMERICAN.** A society organized in 1876 and incorporated in 1879 to develop the public library in its bearing on American education and by coöperation to increase the efficiency of library administration. The society holds annual meetings. The thirty-second annual meeting was held June 30 to July 6, at Mackinac Island, Michigan. The attendance at the meeting was 532. In connection with this conference the librarians of agricultural libraries held their first meetings as did the special libraries association. In addition to the formal business reports and discussions at the conference, subjects which were given consideration were the following: Technical books, the library and the school, deterioration of paper used in newspapers, the Aberdeen Association, and playgrounds and social welfare. Two symposiums on recent new books and recreation for librarians were held. At the meeting in 1909 it was decided to remove the association headquarters from Boston to Washington Street, Chicago. The new headquarters is the distributing centre for all the American Library Association publications, and serves as a bureau of information concerning library work in the United States. It is the meeting-place of the Executive Board of the Association, the Publishing Board and of the different sections of the A. L. A. Publications of value to librarians are on file for the assistance of library workers and others. The Association has been instrumental in establishing library organizations in 39 States, besides many local library clubs in cities and districts. Affiliated with it are three national organizations for kindred purposes: the National Association of State Libraries, the League of Library Commissions, and the American Association of Law Libraries. The most important activity of the association is a publishing board, which operates under a gift of \$100,000, made in 1902 by Andrew Carnegie. The income from this fund is used in the compilation of indexes, of bibliographies, reference helps and literature for the promotion of library extension and the selection of books. It has published an important bibliography of American history and the A. L. A. Catalogue in 1902. In 1909 work was started on a supplement to this catalogue to cover the years 1904 to 1909 inclusive. The officers for 1910 were as follows: President, James Wyer, Jr.; First Vice-President, Mrs. H. L. Elmendorf; Second Vice-President, W. Dawson Johnston;

Executive Board, C. W. Andrews, Alice S. Tyler, W. C. Lane, Henry E. Legler, Herbert Putnam, Purd B. Wright; Treasurer, Carl B. Roden; Secretary and Executive Officer, Chalmers Hadley. The thirty-third annual meeting of the Association will be held in Southern California sometime between May 1, and June 1, 1911.

**LIBRARY OF CONGRESS.** A National institution open to the public at Washington, D. C., founded in 1800. It occupies a magnificent building, which is probably the most well-equipped library building in the world. It was constructed in 1897 at a cost of over \$6,000,000. There were in the Library at the close of the year 1910 1,793,158 books, 118,165 maps and charts, 517,806 volumes and pieces of music, and 320,251 prints. There were published during the year 90,473 volumes of printed books and pamphlets. Among the most notable gifts received by the Library during the year was a privately printed illustrated catalogue of the collection of pictures and also of the collections of old plates owned by J. Pierpont Morgan. There were received as gifts also the catalogues of the Demotic Papyri and the Coptic Manuscripts of the John Rylands Library. The purchases of the year included the collection of the early editions of old English plates, in many cases the first. An important purchase of music included the Martorell collection. The most important accession of manuscripts was the volumes of Madison Papers, heretofore owned by the Chicago Historical Society, the title to which has now passed to the United States. Almost equal in importance was the acquisition of the Papers of James K. Polk from transfer by the Chicago Historical Society. These consisted of twenty-four volumes of Polk's Diary and a miscellaneous collection of about 450 letters to and from him. Other collections of papers included letters of William Eustis of Massachusetts and the papers of Andrew Stevenson and the diary of Dr. Moses Waddell.

The Library has been engaged for several years in copying manuscript material in the English Archives relative to the American Colonies. The total number of folios now copied is upwards of 85,000. The calendar of the Van Buren papers was completed during the year. Of the journals of the Continental Congress for 1780, three volumes have been printed and issued, and editorial work on the volumes for 1781 is under way. Appropriations for carrying on the work of the Library in 1910 amounted to \$484,947 and the expenditures to \$483,227. The visitors to the Library during the year numbered 768,911 or an average of 2118 daily. The librarian is Herbert Putnam.

**LIBRARY PROGRESS, 1910. CONFERENCES.** The American Library Association held its annual meeting at Mackinac Island from June 30 to July 6, 1910, with an attendance of 532. J. I. Wyer, Jr., director of the New York State Library, was elected to succeed N. D. C. Hodges, librarian of the Cincinnati Public Library. Pasadena, California, was selected as the meeting-place for the conference in 1911. Two international congresses were held in Brussels from August 25 to 31, 1910. About 50 American librarians attended these conferences, some of whom also attended the annual convention of the Library Association of the United Kingdom held at Exeter, September 5 to 9. These three foreign meetings have served to

strengthen the bonds of fellowship and stimulate library work of individual countries.

**LIBRARY ORGANIZATION.** The American Library Association has a membership of 2005. It is governed by an executive board and a council, and its headquarters are now established in Chicago. It has also an active publishing board and five organized sections. Three societies are affiliated with the American Library Association and meet with it. The special libraries association was established in 1909 and held its first organized meeting in connection with the American Library Association at Mackinac. Its membership numbers chiefly librarians of technical and civic institutions, business houses, and industrial companies. The Pacific Northwest Library Association is a separate library association, organized in 1909 and made up of librarians of Oregon, Washington, British Columbia, Montana, Idaho and Utah. It held its second annual meeting at Portland in June, 1910. The Ontario Library Association promotes library interests in Canada and holds annual meetings. The Department of Education of Ontario is doing much to develop Canadian libraries.

In the United States there are thirty-eight State library associations, twenty-five local library clubs, and thirty-four States now have library commissions or bodies serving commission purposes. The library commission is probably the most effective agent for organized library extension. Several of the commissions publish library periodicals, among which should be mentioned *New York Libraries*, *News Notes of California Libraries*, and the *Wisconsin Library Bulletin*. The League of Library Commissions is an organization in which membership from all the commissions is included. It is affiliated with the American Library Association and meets with it. Commission methods and plans are compared and discussed. The organization of new libraries, the distribution of traveling libraries, extension work in rural communities and work with penal and charitable institutions are embraced in the field of commission work.

**LIBRARY TRAINING SCHOOLS.** The professional training section of the American Library Association held its first meeting at Mackinac Island. Its purpose is to standardize and develop the efficiency of the library schools of which there are now eleven. Library courses vary from one to two years and some schools admit only students who hold B. A. degrees. The schools are connected with libraries, universities or State commissions. Several brief summer library courses are given by the library schools or by commissions, chiefly for the purpose of giving systematic instruction to untrained library workers. Many libraries also give professional courses as preliminary equipment for work within their own grades of service. The Chicago and St. Louis public libraries established training classes during the year.

**NEW LIBRARY BUILDINGS AND CARNEGIE GIFTS.** The new building of the New York Public Library will doubtless be completed in 1911. Progress is reported on the new buildings for the St. Louis Public Library, the New York State Library, the Connecticut State Library, and the Springfield (Mass.) City Library. The new public library building of Denver was dedicated in February, 1910. The library gifts from Andrew Carnegie to the United States and

Canada for the year totaled 62 buildings, amounting to \$1,026,500, exclusive of 14 increases to previous gifts, amounting to \$39,200.

**LIBRARY APPOINTMENTS.** Important changes in library personnel during the year 1910 were the resignation of Charles F. Lummis from the librarianship of Los Angeles Public Library and the appointment of Purd B. Wright of St. Joseph, Missouri, to succeed him; also the retirement of Charles R. Dudley from the librarianship of the Denver Public Library, and the appointment of Chalmers Hadley, secretary of the American Library Association to succeed him. Mr. Henry E. Legler completed his first year in the important work or reorganization of the Chicago Public Library, of which he was appointed librarian late in 1909.

**SPECIAL FEATURES.** Progress in library co-ordination is indicated by the development of inter-library loans and the coöperative publication of library lists. Library interests are coming into closer touch with civic progress, and the work with schools and civic institutions has developed rapidly. A budget exhibit was held in October, 1910, in New York City, at which the work of the libraries of Greater New York was represented. Similar budget exhibits have been undertaken in other cities, and a city planning conference in Los Angeles, a children's conference in Cleveland, a playground conference in Rochester, and preparations for the Child Welfare Exhibit in New York City in 1911, have served to stimulate library activities and widen library influence. Work with schools, story-telling, and training school students in the use of the library are important features of library work; also special attention has been given to the agricultural and technical library and to the use of the library by foreigners.

**LIBRARY LITERATURE.** Among publications for the year special mention should be given to *The American Public Library*, by Arthur E. Bostwick (Appleton). Several pamphlets have been added to Mr. Dana's *Modern American Library Economy* series, and numerous useful catalogues and bibliographies have been published, among which two additional volumes to Miss Hasse's monumental *Index of Economic Material in Documents of the States of the United States* are specially noteworthy.

**GENERAL TREND.** The résumé of the year shows that the progress was extensive rather than initiative in character, work developing along established lines without striking innovations or experimentation. The New York Public Library circulates about 7,000,000 books through its branches, and about 1,000,000 through traveling libraries. The Brooklyn Public Library circulates 4,066,024 volumes. The Chicago Public Library shows an increase in circulation of three-fourths of a million within the year. The Library of Congress now ranks as the third largest library in the world.

**LICENSES, GAME.** See **GAME LAWS**.

**LICENSES, SALOON.** See **PROHIBITION**.

**LIDDEL, T. H.** See **LITERATURE, ENGLISH AND AMERICAN, Travel and Description**.

**LIFE INSURANCE.** See **INSURANCE**.

**LIGHT.** See **PHYSICS**.

**LIGHTHOUSES.** In accordance with an act of Congress, approved June 17, the Lighthouse Board of the United States, organized in conformity with the act of Congress, approved August 31, 1852, to supervise the lighthouses and other aids of navigation of the waters of

the United States, was terminated. This board was composed of officers of the navy, and of the corps of engineers of the army, with a civilian member and the Secretary of Commerce and Labor, to which department this work was assigned, as president ex-officio. The object of this reorganization was to secure a more direct, simple and economical method of administration, and the act, which was approved June 17, 1910, became effective July 1, 1910. In pursuance of this provision G. R. Putnam was appointed Commissioner and A. V. Conover Deputy Commissioner, by the president. The Act provided that in the Department of Commerce and Labor there should be a bureau of lighthouses (which should assume the previous duties of the Lighthouse Board, and all of its employes of the lighthouse establishment should be duly transferred to the new organization, excepting the army and navy officers.

There were in 1910 the following aids to navigation under the control of the United States Lighthouse Establishment:

Lighted Aids	
Hyper-radiant lights .....	1
First-order lights .....	58
Second-order lights .....	23
Third-order lights .....	80
Three-and-a-half-order lights .....	18
Fourth-order lights .....	336
Fifth-order lights .....	149
Sixth-order lights .....	94
Lens-lantern lights .....	506
Range-lens lights .....	21
Reflector lights .....	95
Post-lantern lights .....	2,344
Electric arc lights .....	12
Electric incandescent lights .....	4
Light-vessels .....	56
Light-vessels, relief .....	15
Gas-lighted buoys .....	224
<b>Total .....</b>	<b>4,036</b>
Unlighted Aids	
Fog-signals, steam, etc. ....	194
Fog-signals, clockwork .....	247
Fog-signals, bell hand .....	16
Day beacons .....	1,172
Submarine signals .....	49
Whistling buoys .....	95
Bell buoys .....	183
Other buoys .....	6,080
<b>Total .....</b>	<b>8,046</b>
<b>Grand total .....</b>	<b>12,082</b>

**LIGHTING, ELECTRIC.** See **ELECTRIC LIGHTING**.

**LIME.** See **FERTILIZERS**.

**LINDAU, RUDOLF.** A German novelist and diplomat, died in October, 1910. He was born in Gardelegen in 1829. For many years he was engaged in the consular and diplomatic service of Switzerland and Germany. He studied in Montpelier and Paris. From 1859 to 1869 he lived in the Far East and in California. He contributed to several French reviews and newspapers. In 1864, with Charles Rickerby, he founded the *Japan Times* at Yokohama. In 1869 he returned to Germany and acted as general correspondent during the Franco-Prussian War. From 1872 to 1878 he was employed in the German Embassy in Paris. After this he lived chiefly in Berlin. He wrote in French, English and German. His writings are notable for keen observation of men and manners, and include the following: *Un voyage autour du Japon* (1864); *Schiffbruch* (2d ed., 1880); *Gute Gesellschaft* (2d ed., 1883); *Martha* (1892); *Türkische Geschichten* (1891); *Alle*



Copyright by Alman, New York

NEW PUBLIC LIBRARY, NEW YORK CITY. MAIN READING ROOM

34

*Geschichten* (1904). His collected romances and novels were published in Berlin in 1892-3.

**LINDSAY, F.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**LION, THE (cruiser).** See BATTLESHIPS.

**LIQUORS, FERMENTED AND DISTILLED.** These products are classified under four general heads: (1) Wines, including ciders and other fermented fruit juices, and so-called sweet or fortified wines, such as port and sherry, to which brandy has been added to preserve the unfermented sugar; (2) malt liquors, such as beer, ale, porter, etc.; (3) distilled liquors, such as whisky, brandy, gin, etc.; (4) liqueurs or cordials, such as apricot and blackberry cordials, Benedictine, etc.

**WINES.** France and Italy are the two great wine-producing countries of the world. France produced, during the year 1909, 1,197,808,920 gallons, and Italy almost as much. During the past year, 1910, the production of these two countries decreased nearly one billion gallons, France producing only about one-half her usual crop. This decrease in production in France and Italy has actually reduced the world's supply of wine approximately one-third. Such a reduction cannot fail to have a great effect upon the wine markets of the world.

The following table gives the production of wine in the principal countries of the world for the years 1908, 1909, and 1910 (stated in gallons):

Country	1908	1909	1910
France ....	1,331,995,000	1,197,808,920	627,652,608
Italy ....	1,064,800,000	910,756,000	700,000,000
Spain ....	473,000,000	324,894,042	400,000,000
Algeria ....	171,682,000	181,031,818	160,000,000
Austria ....	136,400,000	99,000,000	125,000,000
Hungary ....	121,000,000	42,350,000	110,000,000
Portugal ...	85,800,000	68,200,000	75,000,000
Bulgaria ...	63,800,000	26,400,000	55,000,000
Russia ....	61,600,000	52,800,000	54,000,000
Chile ....	52,800,000	50,600,000	50,000,000
United St. .	39,600,000	33,000,000	40,000,000
Germany ...	50,000,000	41,800,000	38,000,000
Turkey ....	39,600,000	33,000,000	37,000,000
Greece ...	39,600,000	48,400,000	35,000,000
Argentina ..	27,500,000	24,200,000	27,000,000

From this list it will be seen that the United States ranks eleventh, standing just above Germany, whose production has fallen off considerably in the last few years. From an examination of this table it will also be seen that only a few countries show increased production in 1910 over 1909. Among the countries which do show such increase are Austria, Spain, Hungary, Bulgaria, and the United States.

The table submitted below sets forth the quantities of dry wines produced in the State of California during the last six years, in gallons as follows:

1905 .....	19,500,000
1906 .....	24,500,000
1907 .....	26,000,000
1908 .....	22,500,000
1909 .....	23,000,000
1910 .....	27,000,000

The above figures show a marked increase in 1910 over the production of dry wines for the last six years. In fact, this year has the largest production recorded since 1902. No record seems to be available for the production of dry wines in the other wine-producing districts of the United States. The production of fortified sweet wines, however, being under the supervision of the Bureau of Internal Revenue (as each gallon of brandy used is subject to a small tax) can be very exactly given, and the table below states the production of the principal wine-producing States and the total production in the United States for the years 1909 and 1910.

This table shows a marked increase in production in 1910 over the previous year, the increase being about four million gallons, being divided among all the wine-producing States, and Virginia is for the first time noted as an important producer of this class of wine. The principal increase, however, is in California, which is the great wine-producing State of this country.

The Commissioner of Internal Revenue, in his annual report, states that there were manufactured in the United States in the year 1910, 9,319,629 gallons of so-called "Port Wine,"

#### PRODUCTION OF FORTIFIED SWEET WINES IN THE UNITED STATES

Locality.	Wine gallons fortified.					
	Tax gallons of brandy used		Before fortification		After fortification.	
	1909	1910	1909	1910	1909	1910
California .....	3,678,377	4,702,861	12,233,305	15,408,845	14,368,025	18,086,868
Hawaii .....	4,764	8,214	21,058	34,637	24,176	39,843
New York .....	129,453	139,240	465,261	494,080	539,507	572,049
N. Carolina .....	1,354	4,570	12,500	35,000	13,243	37,512
Virginia .....		31,924		244,772		262,444
Total U. S. ....	3,814,129	4,888,445	12,734,898	16,229,398	14,945,871	19,012,397

while the statistics of the wine production of the Douro district of Portugal, where the true port wines are produced, show a production there of but 6,440,000 gallons, considerably less than the production of this class of wine in the United States.

Considerable legislation has been enacted and a number of rulings regarding wines promulgated during 1910. The French government is limiting the area in which champagne wine can be made to a very small district. Sparkling wines made in another part of France are

not entitled under this ruling to the name "champagne." Two important decisions as to the labeling of wines under the Food and Drugs act have been made during the past year. The first decision, known as Labeling of Ohio and Missouri Wines, permits a product to be labeled "Ohio wine" or "Missouri wine," without further statement, even if a large amount of water and sugar has been added in its preparation, and as no practical restrictions can be placed upon this use of sugar and water, the result of this ruling will undoubtedly be that

the terms "Ohio wine" and "Missouri wine" will become synonymous for a very low grade adulterated wine. The other decision bearing on the labeling of wines permits wines manufactured in the United States similar to sherry and port to be called "sherry" or "port" in combination with the name of the State in which it was produced. These decisions are in striking contrast to the tendency in other wine-producing countries, where measures are being taken to increase the reputation of their products by placing more restrictions upon the use of materials and labels.

The Spanish government has recently issued standards and provided definitions for wines, beers, and distilled spirits, which show an effort to keep up with other wine-producing countries of Europe in protecting the good name of their products. These standards for wines are in general very similar to those of France, and are quoted in brief form as follows:

"Wine shall be understood as the beverage resulting from the alcoholic fermentation, complete or incomplete, of the juice of fresh, ripe grapes."

"In sparkling wines there shall be permitted the variations set forth, and also the manipulations and processes known as the 'champagne method,' as also charging them with pure carbonic acid.

"Nevertheless no wine shall be sold under the name of Sparkling Wine except in the event that its effervescence is the result of a second alcoholic fermentation while bottled up, whether spontaneous or resulting from the champagne method. Wines charged with carbonic acid should be clearly marked on the label, bearing the words 'Champagne de Fantasia' (imitation champagne) or some other classification in the same lettering as the words Sparkling Wine or Champagne, which will not permit confusion as to the nature of the product."

"There shall be understood as fortified wines, those prepared by any of the methods specified, or resulting from the mixing of different wines with each other:

"1. Dry and strengthened with alcohol.

"2. Semi-sweet wines, mild, resulting from a partial careful fermentation or by the addition of alcohol.

"3. Sweet wines resulting from the addition of alcohol to the grapes or must.

"4. Fermented wines to which alcohol has been added.

"In the preparation of these the use of grapes more or less dry is permitted.

"Generally there shall be held as fraudulent all of the manipulations and practices having for their object the changing of the natural condition of the wine to conceal alterations in the same or to deceive as to its substantial qualities or origin.

"There shall be understood as cider the beverage proceeding from the alcoholic fermentation of the juice of fresh apples, or a mixture of apples and pears, extracted with the addition of water, or pure."

**FERMENTED LIQUORS.** The report of the Commissioner of Internal Revenue shows an increase in production of fermented liquors in 1910, 59,544,775 barrels being produced as against 56,364,360 barrels in 1909; but a decrease in the number of breweries was shown, 1568 being operated in 1910, as against 1622 in 1909. This decrease in the number of breweries was largely due to the Prohibition laws, showing that these laws had the effect of changing the place of production without interfering with the aggregate amounts produced and consumed.

In this connection, the Spanish definitions of beer are of exceeding interest, and are as follows:

"There shall be understood as beer the beverage obtained through the alcoholic fermentation of must made from hops, sprouted grain, yeast and water."

"The beverage sold under the name of beer must not be manufactured except from the products mentioned in its definition.

"The beer in whose preparation part of the barley has been substituted by other grains or starch material shall be sold under a special name indicating clearly its manufacture."

This shows that the term "beer" has a fairly definite meaning and that the materials from which it can be made are barley, malt and hops.

**DISTILLED SPIRITS.** The statistics on the total production of distilled spirits in the United States during the year 1910 show a very marked increase over the previous year, the production being 156,237,527 gallons, as against 133,450,755 gallons in the previous year; and the withdrawals for consumption also show a large increase, being 126,384,726 gallons, as against 114,693,578 gallons withdrawn in 1909. That is to say, 11,421,185 more gallons of distilled spirits were consumed in the United States during the year 1910 than in the previous year—this increase in consumption apparently in spite of the State-wide prohibitory laws existing in some of the States and local option laws in other States which have had the effect of greatly reducing the number of distilleries actually in operation, there being but 906 distilleries operated in 1910 as against 1292 distilleries in the previous year. These facts would seem to indicate that the Prohibition laws have very little effect on the total consumption of distilled spirits, but have effected to a very considerable extent the place of production. In addition, the Commissioner of Internal Revenue reports that there has been a very large increase of illicit distilling, especially in those States having State-wide prohibitory laws. Most of this illicit distilling has been in Georgia, Alabama, and North and South Carolina. During 1910 there were seized and destroyed a total of 1911 illicit distilleries, and 1743 in the previous year.

The following table shows the total production of the various classes of distilled spirits in the United States in the last three years, and indicates a great increase in the production during this period:

Year	Rum	High wines	Gin	Whiskey	Alcohol	Coml. Alc.	Misc.
1908.....	1,895,922	50,062	2,756,752	27,708,351	50,935,821	16,849,154	26,793,675
1909.....	1,952,374	221,277	2,483,743	70,152,174	42,563,103	16,078,082	.....
1910.....	1,730,551	206,534	2,985,435	82,463,894	50,703,845	15,841,370	.....

The great increase in production of whisky is probably not a real increase, as a change in the classification under the Internal Revenue Regulations now permits products to be classed as "whisky" which were formerly classed as alcohol or neutral spirits.

Following the decision of President Taft as to the manner of labeling "whisky," a still more lenient ruling was issued by the three Secretaries authorized to issue rules and regulations for the enforcement of the Food and Drugs Act. These regulations entitle any distilled spirit made from grain, diluted to potable strength, to the label "whisky." In addition, the distillers of spirits from molasses have succeeded, through the courts, in practically obtaining the right to the use of the name "whisky" for potable distilled spirits made from molasses, so that at the present time, under the rulings now in force, any spirit distilled from grain or molasses, and diluted to potable strength, is entitled to the name "whisky," thus giving the whisky interest a complete reversal of the methods of labeling prescribed for their products by the previous administration. This, however, has had the effect of greatly increasing the amount of whisky bottled in bond, as the obtaining of this class of product is the only way in which the consumer can be assured he is getting straight whisky. The report of the Commissioner of Internal Revenue shows also that 8,985,759 gallons of distilled spirits were bottled in bond in 1910, as against 6,365,839 gallons bottled in bond in 1909, and 4,794,358 in 1908, the amount of spirits bottled under this act having nearly doubled in two years.

The following table gives the amount of wine and spirits consumed in Great Britain for the past three years:

CONSUMPTION OF WINE AND SPIRITS IN  
GREAT BRITAIN

Liquor	1908	1909	1910
Wines .....	11,351,314	11,455,270	12,723,082
Brandy .....	1,963,413	1,553,024	1,458,935
Rum .....	4,031,954	3,211,937	2,815,232
Foreign spirits ...	686,109	850,165	953,707
British spirits ....	31,413,397	25,459,566	23,429,693
Total Spirits ....	38,094,873	31,074,692	28,657,567

These figures show, what has been noted in previous years, that there has been a steady decrease in the consumption of distilled spirits in Great Britain, and the reduction of nearly 10,000,000 gallons in consumption since 1908, materially decreasing the per capita consumption, which has been steadily growing smaller. These figures, however, indicate a slight increase in the consumption of wine, but also show a very large decrease in the consumption of rum.

The following definitions have been prescribed by the Spanish government in connection with the alcoholic beverages:

"COGNAC: The product resulting from the distilling of natural wines and preserved in special vats to which it owes its color.

"KIRSCH: The exclusive product of the alcoholic fermentation and distilling of cherries.

"GIN: The product of the distilling of the fermented juice of cereals with juniper berries.

"RUM and MOLASSES RUM: Alcoholic products obtained through the fermentation and dis-

tilling of sugar-cane juice or molasses dregs, sirops and wines manufactured from sugar-cane.

"WHISKY: This liquor is obtained from the fermentation of wheat, barley, rye or corn.

"BRANDY: Is the distilled product of good table wines.

"There should be considered as liquors the alcohols intended for food, aromatized by maceration or distilling with different vegetable substances or prepared by the addition to the alcohol of the product of the distilling of said substances together with alcohol or water, or through the combined use of these different proceedings and sweetened or not by means of sugar, glucose, grape sugar or honey and colored or not with inoffensive substances."

"There shall be permitted:

"The use of harmless coloring matter provided that the specific name of the liqueur is marked specifically 'colored.'

"The total or partial addition of aromas, provided that the specific name of the liqueur is qualified as 'artificial.'

"The substitution of saccharose, in whole or in part, with glucose, provided that to the specific name is added that of 'Fantasia' (imitation).

"The words 'colored' and 'artificial' should be printed in the same sized type as those bearing on the labels and tags the name of the liqueur."

The requirement of the Spanish government that liqueurs shall be labeled "imitation" when glucose has been substituted for saccharose (cane sugar) indicates that sugar is recognized the world over as saccharose, and that other products are recognized as substitutes therefor.

**LIQUOR TRAFFIC.** See PROHIBITION and LIQUORS, FERMENTED AND DISTILLED.

**LITERATURE, ENGLISH AND AMERICAN.** The rapid increase in the number of books published on both sides of the Atlantic is shown by the tables on the next page, in which the literary output of 1898, as reported in the INTERNATIONAL YEAR BOOK, is compared with that of 1910, as given in the *Publishers' Weekly* of New York City. In the year 1910 the American book production reached the unprecedented figure of 13,470, for the first time surpassing the English and ranking next to the German. Many of the titles in the two lists are, however, common to both countries. Of the American list for the year, 9209 books were by American authors and 4261 were by English or other foreign authors. It will be seen from the tables that during the period 1898-1910, British book production increased by 50 per cent., and American by more than three times that. Fiction in England has remained almost stationary during that period and probably has reached its height for the present in America also, for the number of new novels this year though greater than last year (1087), is less than in 1908 (1458). Religion, Theology and Philosophy, on the other hand, continue to make rapid gains in both countries. The greatest proportional increase is shown in works relating to the sciences and arts and to domestic and rural affairs, while the increased attention being paid in America to historical and sociological studies is manifest from the large number of new books in these fields. The classification of publications is, to some extent, arbitrary, and has doubtless changed somewhat during the

## BOOKS PUBLISHED IN ENGLAND

	1898		1910		
	New Books	New Editions	New Books	New Editions	P. C. of Increase in New Books 1898-1910
Fiction and Juvenile Works .....	1,758	644	1,806	1,027	8
Poetry and Drama .....	290	81	386	204	33
Arts, Sciences and Illustrated Works .....	263	32	1,019	235	288
Educational, Classical and Philological .....	732	189	577	82	-21
Theology, Religion and Philosophy .....	535	153	908	156	70
Political and Social Economy, Commerce etc. ....	437	97	710	106	62
Law and Jurisprudence .....	117	46	148	100	26
Voyages, Travels, Geography .....	133	39	490	114	268
History, Biography, etc. ....	618	225	719	141	16
Medicine, Surgery, etc. ....	160	36	229	99	87
Year Books and Serials in Volumes .....			488		
Belles-Lettres, Essays, etc. ....	182	36	200	72	10
Miscellaneous, including Pamphlets. ....	436	30	718		62
Totals .....	5,661	1,608	8,468	2,336	50
		5,661		8,468	
		7,269		10,804	

## BOOKS PUBLISHED IN THE UNITED STATES

	1898		1910		
	New Books	New Editions	New Books	New Editions	P. C. of Increase in New Books 1898-1910
Fiction .....	724	181	1,303	236	80
Law .....	417	39	620	58	49
Theology and Relig. Education and Language .....	406	40	894	49	120
Juvenile .....	364	13	504	19	38
Literary, History and Miscellaneous (1898) .....	356	17	935	75	163
Literature and Collected Works (1910) .....	313	19			
Poetry and Drama .....			1,352	690	
History .....	288	15	721	31	150
Political and Social Science .....	244	38	526	39	116
Biography .....	243	14	748	36	208
Physical and Mathematical Science .....	172	23	631	14	267
Description, Travel, Geography .....	143	31	644	67	350
Fine Arts and Illustrated Gift Books .....	134	32	544	55	306
Works of Reference .....	144	19	324	21	125
Useful Arts .....	106	6	127	15	
Philosophy .....	45	6	721	136	580
Domestic and Rural Sports and Amusements .....	40	3	248	17	451
Humor and Satire .....	32	10	126	19	294
Medical Science, Hygiene .....	18	2	47	2	161
	143	45	369	175	158
Totals .....	4,332	553	11,671	1,799	169%
		4,332		11,671	
		4,885		13,470	

twelve years, and, unfortunately, different systems of classification are in use in England and America, so no exact comparisons can be drawn. It would be rash to attempt to decide whether there has been a gain in quality as in quantity of the literature produced, but it is probably safe to say that there has been a general improvement of literary craftsmanship and if there appear to be fewer works of distinction than formerly, it is in part because of the close rivalry of numerous competitors in every field.

FICTION. The reports of the public libraries in various cities and the tables of sales published monthly in the *Bookman*, show that the public is quite independent of the dictation of advertisers and reviewers. A novel by a well known author may sell extensively for the first month or two, but if it is inferior to his former works, it speedily drops, while books by comparatively unknown writers often work their way to the front rank with little aid from the publishers or professional criticism. It has been found that it does not pay to force the sale of a novel to the highest limit by heavy advertising as was done a few years ago. Loyalty to an author does not count for much nowadays. Readers are more interested in the books than in their makers, notwithstanding the exaggerated attention given to personalities in literary periodicals. An author's name is of value in so far as it stands for fiction of a certain grade and character. If an author changes his style decidedly he loses his public and has to work up a new one. For the reading public becomes more diversified and each new form of fiction that is introduced remains in favor with a sufficient number so that stories of that type continue to appear year after year. An instance of the independence of the reading public is afforded this year by *The Rosary*, a novel of sentiment and renunciation, with a musical motif, by Florence Barclay, which was published in 1909 and in spite of the fact that it received comparatively little attention from reviewers gradually gained popularity and crept up in the list of "best sellers" until by October it had reached the top, where it remained for the rest of the year. A similar case of unpromoted popularity occurred in 1908 when *The Lady of the Decoration*, an unpretentious novel, by an unknown author, worked its way into public favor. Second in popularity to *The Rosary* this year is a novel of a very different history, *A Modern Chronicle*, by Winston Churchill, which immediately upon its publication far outstripped its competitors. In this new work Mr. Churchill substitutes for his former theme of political ambition its feminine equivalent, social aspiration. Third in the list is *The Wild Olive*, by Basil King, author of *The Inner Shrine*. Next to this in the order of popularity is Mrs. Mary Roberts Rinehart's *When a Man Marries*, which was followed later in the year by *At the Window of the White Cat*, both clever extravaganzas. The list of the best selling fiction for 1910 contains the names of several books of 1909: *John Marvel, Assistant*, by Thomas Nelson Page; *Truxton King*, by George Barr McCutcheon; *The Silver Horde*, by Rex Beach; *Little Sister Snow*, by Frances Little, author of *The Lady of the Decoration*; *Bella Donna*, by Robert Hichens; *It Can Never Happen Again*, by William De Morgan; *The Calling of Dan Mathews*, by Harold Bell Wright. Of the new books besides those mentioned the most popular



**GOLDWIN SMITH**



**WILLIAM J. ROLFE**



**SYDNEY W. PORTER**  
("O. Henry")



**WILLIAM VAUGHN MOODY**

*Photo by Sarony, New York*

**FOUR FAMOUS WRITERS WHO DIED IN 1910**

३७०

were: *Lord Loveland Discovers America*, a story of a fortune-hunter, by Charles Norris Williamson and Mrs. Alice Muriel (Livingston) Williamson; *The Kingdom of Slender Swords*, by Hallie Erminie Rives; *Simon the Jester*, a whimsical tale of a lovable hero in an unusual situation, by William John Locke; *Nathan Burke*, a semi-historical novel by Mary Stanberry Watts; *The Foreigner*, a tale of Saskatchewan, by Ralph Connor; *Passersby*, by Anthony Partridge; *White Magic*, the story of an artist's love affair, by David Graham Phillips; *Lady Merton*, *Colonist*, eulogistic of Canadian pioneer life, by Mary Augusta (Arnold) Ward (Mrs. Humphry Ward); *A Splendid Hazard*, by Harold MacGrath, an adventure story; *Rose in the Ring*, a circus story, by George Barr McCutcheon; *Maz*, another masquerade, by Katherine Cecil Thurston; *The Man Outside*, by Wyndham Martyn; *The Tower of Ivory*, a romance of musical Munich, by Gertrude Franklin Atherton; *The House of Whispering Pines*, a detective story, by Anna Katherine Green; *By Inheritance*, by Octave Thanet; *The Illustrious Prince*, a diplomatic mystery, by Edward Phillips Oppenheim; *The Man Higher Up*, by Henry Russell Miller; *Ailea Paige*, period of the Civil War, by Robert William Chambers; *The Mistress of Shenstone*, by the author of *The Rosary*; *Molly Make-Believe*, a charming little story, by Eleanor Hallowell Abbott. Of the fiction mentioned above as the most popular in America, one-fourth is of English authorship; 18 of the authors are men and 14 women. Arnold Bennett follows up his *Old Wives' Tale* and other stories of the Five Towns with *Clayhanger*, the first of a trilogy of three long novels of the same locality. Mr. Bennett shows consummate skill in interesting the reader in commonplace characters and trivial events described in the minutest detail. William De Morgan's *An Affair of Dishonor*, was a great disappointment to his friends. This story of the days of Charles II., has little of the charm of his modern London novels. *The Creators*, by May Sinclair, is a study of the psychology of genius; *Celt and Saxon*, a posthumous and incomplete novel, was welcomed by all the devotees of George Meredith. Herbert George Wells tells the *History of Mr. Polly* with humorous satire of modern social conditions and sympathy for those who do not fit into them. In *Kest Harrow* "a comedy of resolution," Maurice Henry Hewlett continues the romance of his unconventional characters, Senhouse and Sanchia. Robert Herrick's *A Life for a Life* is the story of an ambitious country boy fighting against the corruption of a great city. *The Doctor's Christmas Eve*, by James Lane Allen, is a sequel to *The Bride of the Mistletoe*. Other noteworthy novels are: *The Ball and the Cross*, adventures interspersed with theological discussions, by Gilbert Keith Chesterton; *The Siege of the Seven Suitsors*, an amusing comedy by Meredith Nicholson; *The Sword Maker*, a romance of the Rhine full of fighting but no fatalities, by Robert Barr; *Magada*, a story of the Spanish conquest of the Canary Islands, by W. M. Ardagh; *Right Stuff* and *A Man's Man*, by Ian Hay Beith; *Mrs. Fitz*, by J. C. Snaith; *The Rest Cure*, by W. B. Maxwell; *Flamsted Quarries*, by Mary E. Waller; *San Celestino* and *Mezzogiorno*, by John Ayscough; *John Winterbourne's Family*, by Alice Brown; *Mr. Ingleside*, by Edward Verrall Lucas; *The Circuit Rider's Wife*, the feminine side of

the Southern itinerancy, by Corra Harris. Among the novels which were popular in England but little known in this country are besides those mentioned the following: *Howard's End*, by E. M. Forster; *A Hind Let Loose*, by C. E. Montague; *Alongshore*, by Stephen Reynolds; *The Shadow of a Titan*, by A. F. Wedgwood; *The Brassbounder*, by David Bone; *Now*, by Charles Marriott; *The Leading Note*, by Rosalind Murray, and *Things That No One Tells*, by C. E. Mayne. Among the volumes of short stories are some of unusual merit: *Rewards and Fairies*, a continuation of the *Puck of Pook's Hill* historical tales, by Rudyard Kipling; *The Finer Grain*, by Henry James; *Tales of Men and Ghosts*, by Edith Wharton; *A Motley*, by John Galsworthy; *Other Main-Travelled Roads*, by Hamlin Garland; *The Guillotine Club*, by Silas Weir Mitchell; *Spread Eagle and Other Stories*, by Gouverneur Morris; *Strictly Business* and *Whirligigs*, by the late Sydney Porter (O. Henry); *Little Aliens* and *New Faces*, by the late Myra Kelly; *Country Neighbors*, by Alice Brown.

**HISTORY.** The most important event of the year, in the field of History, is the completion of the great coöperative history of the world, planned by the late Lord Acton and published by the Cambridge University Press, under the editorship of A. W. Ward, G. W. Prothero and Stanley Leathes. The twelfth volume of this *Cambridge Modern History* deals with *The Latest Age* and is even more varied and disconnected in its contents than the preceding volumes, for it is composed of 26 chapters by almost as many authors, each dealing with recent events in different countries, or historical movements. The entire work is practically a collection of monographs by specialists, arranged chronologically, constituting a reference work of unique value on account of its authoritativeness and comprehensiveness, although not written with the view of attracting the ordinary reader by literary charm. The bibliographies appended to each chapter add greatly to the value of the history. Considering the difficulty of the undertaking and especially the number of the authors in various countries, the completion of the work within eight years after the first volume appeared is a remarkable achievement. Another coöperative history brought to a successful completion during the year is *The Political History of England from the Earliest Times to the Reign of Queen Victoria*, by William Hunt and Reginald Lane Poole. The twelve volumes have appeared within five years. Fourteen scholars have contributed to this history, all but three of them Oxford men. A similar history of England is also appearing, under the editorship of Charles William Chadwick Oman, of which four of the seven volumes have been published. Its latest volume is the earliest chronologically. *England before the Norman Conquest*, by Professor Oman. Peter Hume Brown brings to a conclusion his *History of Scotland* with the third volume, from the revolution of 1689 to the disruption of 1843. *A Century of Empire*, by Sir Herbert Eustace Maxwell, aims to give in three volumes, of which two have appeared, a history of Great Britain during the nineteenth century. The controversy over the reform of the House of Lords has brought out a number of historical and political studies bearing on the subject, among them: *Senates and Upper Chambers*, by Harold W. V.

Temperley; *The House of Lords during the Civil War*, by Charles Harding Firth, Regius Professor of Modern History at Oxford; and *Second Chambers*, by John Arthur Ransome Marriott. Professor Firth also issued two volumes on: *The Last Years of the Protectorate 1656-1658*, a scholarly continuation of the *History of the Commonwealth and Protectorate* left incomplete by the death of Dr. S. R. Gardner in 1902. Francis Warre Cornish in his two volumes on *The English Church in the Nineteenth Century* completes a continuous ecclesiastical history. *The Dawn of Modern England*, by Carlos B. Lumson, gives a history of the Reformation in England from a Roman Catholic standpoint. *Social Life in the Fifteenth Century*, by Annie Abram, though a small volume, contains an original study of the effect of economic conditions. *The Good Old Times*, by Frederick W. Hackwood, was written for the purpose of showing the oppression of the poor by the rich. *Vanishing England*, by P. H. Ditchfield, describes the architectural relics of the past. Here may be mentioned also: *Relics and Memorials of London City*, by James S. Ogilvy and *British Costume during Nineteen Centuries*, by Mrs. Charles Henry Ashdown. Julian Stafford Corbett, in *The Campaign of Trafalgar*, narrates the struggle of 1804-5, between Napoleon and the European coalition.

The growing recognition of the importance of imperial problems is shown by the number of books published every year in England, on the British colonies, historical, political and descriptive. The first volume of a new series on "The British Empire" is *Yesterday and To-day in Canada*, by the Duke of Argyll, the descriptive part of which is based on personal observation. *Canada, the Empire of the North*, by Agnes Christina Laut, is a lively narrative of the history of the Dominion. *The Logs of the Conquest of Canada, 1759-60*, are edited by William Charles Henry Wood. On Australia we have: *The English Colony in New South Wales, 1788 to 1801*, by David Collins; *On the Wool Track*, by C. E. W. Bean; *Australia: The Making of a Nation*, by John Foster Fraser. *The Rise of South Africa*, by George Edward Cory, is an authoritative history of colonization from the earliest times to 1857. The first volume of the four, bringing the narrative down to 1820, has appeared. The Secretary of the Transvaal Delegation, Robert Henry Brand, gives in the *Union of South Africa*, an account of the new constitution and the circumstances of its origin. *South Africa Memories* consists of the diaries and recollections of Lady Sarah Isabella Augusta Wilson, sister of Winston Churchill, lively gossip of the Jameson Raid and the Boer War. Other books on colonial affairs are: *New Zealand in Evolution*, by Gary Hardy Scholefield; *Great and Greater Britain*, by J. Ellis Barker; *The Broad Stone of Empire*, by Sir Charles Bruce; *Sierra Leone*, as it was and as it is, by Thomas Joshua Aldridge.

In ancient history and archaeology the following may be specified: *Stone and Bronze Ages in Italy and Sicily*, a thorough study of prehistoric remains, by T. Eric Peet; *Amurru, the Home of the Northern Semites*, by Albert Tobias Clay, an argument against the Babylonian theory; *Seal Cylinders of Western Asia*, by William Hayes Ward, illustrated by over 1500 drawings from cylinders; *Arts and Crafts of Ancient Egypt*, by W. M. Flinders Petrie, a profusely

illustrated handbook; *The Sea Kings of Crete*, by James Baikie, and *Crete the Forerunner of Greece*, by Charles Henry Hawes and Harriet A. Hawes, both of these books being popular expositions of the results of the recent studies of Minoan civilization; *Greek Athletic Sports and Festivals*, by E. Norman Gardner; *The Roman Republic*, in three volumes, by William Emerton Heitland; *Life in the Roman World of Nero and St. Paul*, by Thomas George Tucker.

On the French Revolution, in addition to the translation by Bernard Miall of M. Aulard's standard work, we have Lord Acton's *Lectures on the French Revolution*, edited by J. N. Figgis and R. V. Lawrence; Prince Peter Kropotkin's *The Great French Revolution*, written from the standpoint of a modern revolutionist; and Alfred Allinson's *The Days of the Directoire* quoting freely from contemporary documents. On other countries than those mentioned we have the following: *Venice in the XIIIth and XIVth Centuries*, by F. C. Hodgson; *The Navy of Venice*, by Alethia Wiel; *A History of Verona*, by A. M. Allen, a scholarly addition to the "States of Italy" series; *A History of Perugia*, by William Heywood; *Rhodian Sea Law*, edited from the manuscripts, by Walter Ashburner; *History of Mediæval Theory in the West*, volume II, by Robert Warrand Carlyle and Alexander James Carlyle—political theory of Roman lawyers from the tenth to the thirteenth century; *Rise of the Mediæval Church and Its Influence on the Civilization of Western Europe* from the first to the thirteenth century, by Alexander Clarence Flick; *The History of Malta during the period of the French and British occupations, 1798-1815*, by William Hardman; *Sailing Ships*, by Edward Keble Chatterton.

In American history few books of importance are to be recorded for the year. John Bach McMaster has issued the seventh volume of his very vivid and original *History of the People of the United States, 1842-1852*; John Bigelow, Jr., has made an exhaustive strategic and tactical study of the *Campaign of Chancellorsville*; Frederic Logan Paxson makes an important contribution to the history of the Far West in *The Last American Frontier*; Charles Elihu Sloooun tells of the struggle to save from the British the country west of the Allegheny Mountains, in his *Ohio Country Between the Years 1783 and 1815*. There are two general histories of the Civil War, George Cary Eggleston's *History of the Confederate War: Its Causes and Conduct*, and John Formby's *The American Civil War*, a concise history of its causes, progress and results, the latter from an English standpoint. A documentary *History of the Society of Jesus in North America*, is being prepared by Thomas Aloysius Hughes, to be completed in six large volumes half of text and half of documents. A new edition of Esquemeling's *Buccaneers of America* has appeared, and at the same time a thorough study of Esquemeling and other sources by C. H. Haring in *The Buccaneers in the West Indies in the 17th Century*. A minute account of *The Diplomatic Relations of the United States and Spain* comes from the pen of Admiral French Ensor Chadwick. Extracts from the diary of Ethan Allen Hitchcock covering the Mexican and Civil Wars are published in *Fifty Years in Camp and Field*, by W. A. Crofut. John Randolph Spear's *Story of the American Merchant Marine* extends from 1607 to the present day. Mention should also be

made of *The Beginnings of the American Revolution*, by Ellen Chase.

**GENERAL BIOGRAPHY.** The immense and increasing popularity of biography, on both sides of the Atlantic, is shown by announcements of the publishers and the reports of the public libraries. The death of any distinguished man, and of many an undistinguished man, is followed by one or more biographies. In most cases these are written with considerable literary skill and show great patience in research, but are apt to be too voluminous and detailed. While the field of contemporary biography is thus being assiduously cultivated, there is no cessation in the production of new lives of men and women of greater or lesser note in the past ages, however often or thoroughly they may have been studied by previous biographers.

In England the most noteworthy event of the year in this field is probably the appearance of William Flavelle Monypenny's authoritative *Life of Benjamin Disraeli, Earl of Beaconsfield*. This covers with great thoroughness the strange career of Disraeli from his birth in 1804 to his entrance into political life in 1837. Lord Rosebery has written a brilliant study of *Lord Chatham, His Early Life and Connections. The Life and Times of the Right Honorable Cecil John Rhodes, 1853-1902*, by his trustee, Sir Lewis Michell, is a thorough and authoritative biography of the great empire-builder. The private life of Cecil Rhodes is the subject of a smaller work by his private secretary, Philip Jordan. *John Bright* is a monograph by R. Barry O'Brien. *The Reminiscences of the Late Goldwin Smith* contains some interesting views of university problems at Oxford and Cornell, and of English and Canadian politics. Among the other biographical works we may mention: a *Life of Reginald Pole*, by Martin Haile, and a *Life of Cardinal Vaughan*, by John George Snead Cox; *Life and Times of Bishop Challoner (1691-1781)*, by Edwin Hubert Burton; *Intimate Society Letters of the Eighteenth Century*, by the Duke of Argyll, consisting chiefly of personal and business correspondence; *A Quaker Post-Bag*, letters to Sir John Rodes of Barlbrough Hall, and to John Gratton of Monyash, 1693-1742, selected and edited by Mrs. Godfrey Locker Lampson, with a preface by Augustine Birrell; *Private Letters of the Marquess of Dalhousie*, Viceroy of India, edited by J. G. A'Baird; *Becket*, by W. H. Hut-ton; two new volumes of Lord Broughton's *Recollections of a Long Life*, edited by his daughter, Lady Dorchester; the third volume of Lady Dorothy Nevill's *Under Five Reigns*; a biographical sketch of Frederic William Maitland, Downing Professor in the Laws of England, by Herbert Albert Laurens Fisher; a *Memoir of Sir John McNeil, and of His Second Wife, Elizabeth Wilson*, edited by their granddaughter, throwing new light on Persian and Crimean affairs; a memoir of *Gathorne Hardy*, first Earl of Cranbrook, edited by Alfred E. Gathorne-Hardy; a *Memoir of Lady John Russell*, edited by Desmond MacCarthy and Agatha Russell; *The Nine Days' Queen*, a careful study of Lady Jane Grey and her times, by Richard Patrick Boyle Davey; *The Last Days of Charles II.*, a medical study, by Raymond Crawford; *The Girlhood of Queen Elizabeth*, a narrative in contemporary letters, edited by Frank Arthur Mumby; *Sir Philip Sidney*, by Percy Addleshaw, who is no hero-worshiper; the *Life and*

*Letters of James Wolfe*, by Beckles Wilson, *The First Great Canadian*, the story of Pierre Le Moyne, Sieur D'Iberville, by Charles B. Reed; *Heroes of Modern India*, sketches of administrators and of missionaries, by Rev. Edward Gilliat.

In American biography chief attention is directed to personages of the Civil War period. The biography of *John Brown*, by Oswald Garrison Villard, is a remarkably full and impartial piece of work. Of the aftermath of the Lincoln centenary may be mentioned sketches by George Haven Putnam, Joseph Hodges Choate and Marion Dexter Learned. Other books of the Civil War period are: the *Life of Charles Sumner*, by Walter G. Shotwell; the *Memoirs of Gustave Koerner*, by T. J. McCormack; *Quantrell and the Border Wars*, by William Elsey Connelley. *The Intimate Life of Alexander Hamilton*, by Allan McLane Hamilton, is based upon family documents never before published; *The Diary of James K. Polk*, during his presidency, 1845-1849, edited by M. M. Quaite; and the Works of James Buchanan are edited by J. B. Moore. Other works are: *Grover Cleveland, a Record of Friendship*, by the late Richard Watson Gilder; *An Old-Fashioned Senator*, Orville H. Platt of Connecticut, by Louis Arthur Coolidge; *An American Citizen*, the life of William Henry Baldwin, Jr., by John Graham Brooks; *The Book of Daniel Drew*, a glimpse of the Fisk-Gould-Tweed régime from the inside, by Bouck White; *Sir Henry Vane, Jr.*, Governor of Massachusetts and friend of Roger Williams and Rhode Island, by Henry Melville King; *Pioneer Priests of North America (1642-1710)*, Volume II, dealing with missionary work among the Hurons, by Rev. Thomas Joseph Campbell; *Daniel Boone and the Wilderness Road*, by Henry Addington Bayley Bruce; *Commodore John Rodgers*, by Charles Oscar Paulin; *Diplomatic Memoirs*, by John Watson Foster, dealing chiefly with Far Eastern questions.

In the educational and scientific field, we have the following: *Life of Daniel Coit Gilman*, first president of the Johns Hopkins University, by Fabian Franklin; *Horace Mann*, educator, patriot, and reformer, a study in leadership by George Allen Hubbell; *The Life of Mary Lyon*, founder of Mount Holyoke College, by Beth Bradford Gilchrist; *Twenty Years at Hull House*, an autobiographical account of settlement work in Chicago, by Jane Addams; *Life and Letters of Josiah Dwight Whitney*, by Edwin Tenney Brewster; *Edison*, his life and inventions, by Frank Lewis Dyer and Thomas Commerford Martin; *Leading American Men of Science*, biographical sketches of Rumford, Audubon, Agassiz, Silliman, etc., by David Starr Jordan, Ira Remson, Simon Newcomb, and others. In the virgin field of Spanish-American biography, we have an impartial estimate of *Simon Bolivar, El Libertador*, by Francis Loraine Petre; and a eulogy of Porfirio Diaz "the master-builder of a great commonwealth," by José Francisco Godoy.

In general European biography we have a volume of sketches of Bismarck, Grotius, Cavour and others, by Andrew Dickson White, entitled, *Seven Great Statesmen in the Warfare of Humanity and Unreason*; a life of *Leopold the Second*, late King of the Belgians, by A. S. Rapoport; *Pope John XXIII.*, by Eustace J. Kitts; *The Medici*, a very comprehensive work, by George Frederick Young; *Lives of the Early Medici as Told in Their Correspondence*, trans-

lated and edited by Mrs. Janet Ross; *The Romance of a Medici Warrior*, semi-fictional biographies of Giovanni delle Bande Nere and his son Cosimo I., by Christopher Hare; *The Real Francis Joseph*, the private life of the Emperor of Austria, by Henri de Weindel; *Saint Teresa of Spain*, by Mrs. Helen Hester Colvill; *Memoirs of the Baroness von Suttner*; *Karl Marx*, his life and work, by John Spargo.

French biography is as copious as usual. Besides the translation of Anatole France's *Life of Joan of Arc*, by Winifred Stephens, we have two minor biographies of the Maid of France, by Mary Rogers Bangs and Grace James. The gossip *Memoirs of the Duchesse de Dino* (afterward Duchesse de Talleyrand et de Sagan) have been concluded with their third volume covering the years 1841-1850. On Napoleon we have: a new and enlarged edition of the standard *Life of Napoleon Bonaparte*, by William Milligan Sloane; *Napoleon in His Own Defense*, by Clement King Shorter, consisting of the "Letters from the Cape," ascribed to Napoleon; *The Exile of St. Helena*, "the last phase in fact and fiction," by Philippe Gonnard; *Napoleon in Caricature*, by A. M. Broadley, describing several thousand Napoleonic cartoons; *Napoleon and the End of the French Revolution*, by C. F. Warwick. Other French biographies of interest are: the *Rise of Louis Napoleon*, by Frederick Arthur Simpson; and *Empress Eugénie, 1870-1910*, by Edward Legge; *The Fascinating Duc de Richelieu*, by Hugh Noel Williams and a new edition of the same author's *Madame du Barry*; lives of *Madame de Maintenon* and of *Marie Amélie*, by C. C. Dyson; *Louis XIV. and Madame de Maintenon*, by Charlotte, Lady Blennerhassett; *Charles de Bourbon, High Constable of France*, by Christopher Hare; *Cagliostro*, "the splendor and misery of a master of magic," by William Rutherford Hayes Trowbridge.

LITERARY BIOGRAPHY. Among the numerous volumes devoted to men of letters, one of the most interesting is the memoir on *William Sharp*, by his wife, Elizabeth A. Sharp, because of the light it throws upon the development of "Fiona Macleod," more of a secondary personality than a pseudonym. The complete *Works of "Fiona Macleod"*, in seven volumes are edited by Mrs. Sharp. *The Life and Letters of Edmund Clarence Stedman* is written by Laura Stedman and George Milbry Gould; Lewis S. Benjamin ("Lewis Melville") produces a second biography of *William Makepeace Thackeray* in two large volumes, and also the *Life and Letters of William Beckford of Fonthill*, author of *Vathek*. William Dean Howells's *My Mark Twain* is a record of friendship lasting for forty-five years. The complete *Correspondence of Jonathan Swift* is being edited by F. Ellington Ball, and the first volume has appeared. The life of *Robert Browning* undertaken by W. Hall Griffin has been completed by Harry Christopher Minchin. Besides the *Japanese Letters of Lafcadio Hearn*, edited by Elizabeth Bisland, we have *Lafcadio Hearn in Japan*, by one of his pupils, Yone Noguchi ("Miss Morning Glory"). Other notable works in this field are: *William Harrison Ainsworth and His Friends*, by S. M. Ellis; *Leigh Hunt's Relations with Byron, Shelley and Keats*, by Barnette Miller; *Shelley, the Man and the Poet*, by Arthur Clifton-Brock; *Robert Herrick*, by Frederick William Moorman; *Dr. Johnson and Mrs. Thrale*, by

Alexander Meyrick Broadley; *Six Essays on Johnson*, by Walter Raleigh; *Samuel Rogers and His Circle*, by Ellis Roberts; *Famous Blue-Stockings*, by Ethel Rolt Wheeler; *Dean Swift*, "the 18th century Don Quixote," by Sophie Shilleto Smith; *Sheridan*, and *Sterne*, by Walter Sydney Sichel; *Sir Walter Scott's Friends*, by Florence McGum; *Oliver Goldsmith*, by Richard Asche King; the *Life of Oliver Goldsmith*, by F. Frankfort Moore; *Ruskin and His Circle*, by Ada Earland; *Letters of John Stuart Mill*, edited by Hugh S. R. Elliot; *Correspondence on Church and Religion of William Ewart Gladstone*, edited by D. C. Lathbury; *With Stevenson in Samoa*, by H. J. Moors; the *Memories of Sixty Years at Eton*, Cambridge and elsewhere, by Oscar Browning; *Mrs. Gaskell*, "haunts, homes and stories," by Mrs. Ellis H. Chadwick; the *Life and Letters of Alexander Macmillan*, by C. L. Graves; *Edmund Garrett*, by Edward Tvas Cook; *John Lothrop Motley and His Family*, further letters edited by his daughter and Herbert St. John Mildmay; the *Journals of Ralph Waldo Emerson*, third and fourth volumes; *Louise Chandler Moulton*, by Lilian Whiting; *Recollections of a Varied Life*, by George Cary Eggleston; *Autobiography of Marion Harland* (Mrs. M. V. Terhune); *Leading American Essayists* (Irving, Emerson, Thoreau, Curtis), by William Morton Payne; *Leading American Novelists* (Brown, Cooper, Simms, Hawthorne, Stowe, Harte), by John Erskine; *Masters of the English Novel*, a study of principles and personalities, by Richard Burton.

In foreign literary biography, the most important item is doubtless Aylmer Maude's extensive and authoritative *Life of Tolstoy*. We have also: *Molière: His Life and Works*, by Brander Matthews; *Francesco Petrarca, Poet and Humorist*, by Maud F. Jerrold; *Balzac*, by Frederick Lawton; *Giovanni Boccaccio*, by Edward Hutton. In the field of artistic and dramatic biography are: *Michael Angelo*, by Gerald Stanley Davies; *George Romney*, by Arthur Bensley Chamberlain; *Gainsborough*, by James Grieg; *Digressions of V.*, illustrated reminiscences, by Elihu Vedder; *The Whistler Book*, a monograph, by Sadakiehi Hartman; *The Reminiscences of Rosa Bonheur*, by Theodore Stanton; *Memoirs and Impressions of Helena Modjeska* (Countess Bozenta Chlapowski); *The Life and Art of Richard Mansfield*, by William Winter; *Intimate Recollections of Joseph Jefferson*, by Eugénie Paul Jefferson.

POETRY AND DRAMA. There are no signs of a revival of interest in modern poetry. Unlike other forms of literature it receives no support from the magazines, which rarely publish any but short poems and these only for the purpose of filling out the page. New volumes of poetry, though usually creditable in technique and sometimes such as would in an earlier age have been widely read, nowadays sell, if at all, in absurdly small editions. We may mention the following titles: *Sable and Purple, with Other Poems*, by William Watson; *The New Inferno*, and *Pietro of Siena*, a drama, by Stephen Phillips; *Drake*, an English epic, and *The Enchanted Island* and other poems, by Alfred Noyes; a final edition of the *Poems of William Winter*; *Dorian Days*, by Wendell Phillips Stafford; *Odes on the Generations of Man*, by Hartley Burr Alexander; *Philosophies*, by Ronald Ross; *Ballads and Poems*, by John Masefield; *Reaping the Whirl-*

wind and other poems by G. F. Bradby; *Wild Fruit*, by Eden Phillpotts; *Many Gods*, and *Song-Surf*, by Cale Young Rice; *The Piper*, by Josephine Preston Peabody, a poetical drama of Hamelin which received the Stratford prize and was first performed in the Shakespeare Memorial Theatre, afterwards at the New Theatre, New York.

Prose plays in book form are more widely read than in former years, and it is becoming the custom in this country, as it has long been in Europe, to publish them shortly before or after their production on the stage. Of the two plays of Maurice Maeterlinck presented at the New Theatre in New York, *The Blue Bird* and *Mary Magdalene*, the former alone proved popular. A prose translation of Edmond Rostand's *Chantecler*, by Gertrude Hall, found many readers. From the younger American dramatists, we have *The Nigger*, by Edward Sheldon; *The Husband and The Forbidden Guest*, by John Corbin; *Theft*, by Jack London. John Galsworthy's *Justice* is a powerful arraignment of the English divorce law and prison system. Here may best be mentioned Walter Prichard Eaton's essays on the American stage, *At the New Theatre and Others*; and *The Study of the Drama*, by Brander Matthews.

ESSAYS AND LITERARY CRITICISM. The production of volumes of essays is facilitated by the custom of reprinting in this form articles that have appeared in newspapers and magazines. They are therefore likely to be attached to the subjects of temporary interest only and to be written in a somewhat hasty style, but on account of their variety, contemporaneity and cleverness, they are often as popular in book form as in periodicals. Excellent examples of this form of writing are the three volumes by Gilbert Keith Chesterton, *What's Wrong with the World?* *Alarms and Discursions*, and *Tremendous Trifles*; and the three volumes by Hilaire Belloc, *On Anything*, *On Everything* and *On Something*. William Dean Howells's recent contributions to the "Easy Chair" of *Harper's Magazine*, appear in book form under the title of *Imaginary Interviews*. *With the Professor*, by Grant Showman, consists of amiable satire on American educational tendencies. *A Silent Isle*, by Arthur Christopher Benson, possesses his usual meditative quality. *Qualities of Men*, an essay in appreciation by Joseph Jastrow, is written from a psychologist's standpoint. *Mad Shepherds and Other Human Studies*, by Lawrence Pearsall Jacks, deals with rustic mysticism. Reproduced from the *British Nation* we have: *A Modern Outlook*, studies of English and American tendencies, by J. A. Hobson; and from the *American Nation*, the seventh volume of the *Shelburne Essays* by Paul Elmer More. *Promenades of an Impressionist*, by James Gibbons Huneker, is in the style of the author's *Iconoclasts*, etc., and *Constrained Attitudes*, by Frank Moore Colby comments on educational, literary and current topics, is in the style of his *Imaginary Obligations*.

On the theory and criticism of literature, some of the important works are: *The Inspiration of Poetry*, by George Edward Woodberry; *Questionings on Criticism and Beauty*, the Romanes Lecture, 1909, by Arthur James Balfour; *The Treatment of Nature in English Poetry*, a new and enlarged edition, by Myra C. Reynolds; *The Science of Poetry and the Philosophy of Language*, by Hudson Maxim, an ambitious

attempt at "the standardization of poetry." In the Shakespeariana of the year there are over sixty titles of which about half are new editions of the plays, complete or partial. Messrs. Methuen have completed the reproduction in facsimile of the four folios of 1623, 1632, 1663, and 1685. A diligent search through some millions of documents by Prof. Charles William Wallace of the University of Nebraska has resulted in the finding of a legal case in which Shakespeare was called as a witness. His deposition concerning the payment of a dowry by Mountjoy with whom he lived is signed and adds a fifth to the Shakespeare signatures extant. (See *Harper's Magazine*, March, 1910.) Among the volumes of Shakespeare criticism may be mentioned: *The Authorship of Timon of Athens*, by E. H. Wright; *Questions of Shakespeare*, by Albert Harris Tolman; *Shakespeare's Roman Plays and Their Background*, by Mungo William MacCallum; and *English Literature during the Lifetime of Shakespeare*, by Felix Emanuel Schelling.

Other works of historical nature besides those mentioned above under *Literary Biography* are: *History of English Prosody*, from the twelfth century to the present day, by George Edward Saintsbury; *A Group of English Essayists of the Early 19th Century*, by Caleb Thomas Winchester; *Literature of the Victorian Era*, by Hugh Walker; *Essays on Modern Novelists*, by William Lyon Phelps; *Longfellow and Other Essays*, by William Peterfield Trent; *Edgar Allan Poe*, a critical study, by Arthur Ransome; *Tennyson as a Student and Poet of Nature*, by Sir Norman Lockyer and Winifred Lockyer; *The Literature of the South*, by Montrose Jonas Moses; *Maurice Hewlett*, being a critical review of his prose and poetry, by Milton Bronner; *The Romance of Bookselling*, by Frank A. Munsey; *The Cambridge History of English Literature*, volumes V and VI, containing the Drama to 1642; *The French Renaissance in England*, by Sidney Lee.

On classical and foreign literature we have: *Lectures on Greek Poetry*, by J. W. MacKail; *Essays on Greek Literature*, by Robert Yelverton Tyrrell; *Homer and the Iliad*, an essay to determine the scope and character of the original poem, by F. Melian Stawell; *Three Philosophical Poets*, Lucretius, Dante, and Goethe, by George Santayana; *Handbook to the Works of Dante*, by Frederick John Snell; *Romanticism and the Romantic School in Germany*, by Robert M. Werner; *Landmarks in Russian Literature*, by Maurice Baring; *The Spirit of Romance*, an attempt to define somewhat of the charm of the pre-Renaissance literature of Latin Europe, by Ezra Pound.

TRAVEL AND DESCRIPTION. In addition to the constant stream of books descriptive of easily accessible places and peoples, books rarely distinguished by any novelty of information or any originality of view, there is each year a special recrudescence of literature dealing with particular regions which have for personal or political reasons been brought into the public eye. In 1910 two such foci of popular interest were the North Pole and Equatorial Africa. The unique geographical event of the year, the discovery of the North Pole by Commander Peary, filled the papers and magazines for months with Arctic material. *The North Pole*, its discovery under the auspices of the Peary Arctic Club, by Robert Edwin Peary, with an

introduction by Theodore Roosevelt, narrates in unpretentious language the history of the great achievement. Among the numerous other books on Arctic exploration may be mentioned: *Hunting with the Eskimos*, by Harry Whitney; *The Great White North*, a compilation from the original narratives of the Polar search, by Helen Saunders (Smith) Wright; *The Toll of the Arctic Seas*, by Deltus M. Edwards. The hunting expedition of ex-President Theodore Roosevelt resulted not only in valuable collections for the Smithsonian Institution, but also in the volume *African Game Trails*, well illustrated with photographs by Kermit Roosevelt and others, combining zoölogical observation with hunting incidents. Other books dealing with African sport and travel are: *In Africa*, by John Tinney McCutcheon, the Chicago cartoonist; *In Wildest Africa*, by Peter MacQueen; *Big Game of Africa*, by Richard Tjader; *Hunting in British East Africa*, by Percy Child Madeira; *Lake Victoria to Khartoum with Rifle and Camera*, by Francis Arthur Dickinson; *Camera Adventures in the African Wilds*, being an account of a four months' expedition in British East Africa, by Arthur Radclyffe Dugmore; *Service and Sport in the Soudan*, by Bimbashi D. Comyn; *In the Torrid Soudan*, by Harold Lincoln Tangne; *Glimpses of East Africa and Zanzibar*, by Ethel Younghusband. Dealing chiefly with the natives of the Congo and elsewhere: *Fighting the Slave Hunters in Central Africa*, by Alfred James Swann; *George Grenfell and the Congo*, by Sir Harry Hamilton Johnston; *A Voice from the Congo*, by Herbert Ward; *Nigerian Studies or the Religious and Political System of the Yoruba*, by R. E. Dennett; *The Yellow and Dark-Skinned People of Africa South of the Zambesi*, by George McCall Theal. On Egypt old and new: *Guide to the Antiquities of Upper Egypt, from Abydos to the Sudan Frontier*, and *Travels in the Upper Egyptian Deserts*, by Arthur Edward Pearse Weigall; *Queer Things About Egypt*, by Douglas Brooke Wheelton Sladen; *Egyptian Birds*, by Charles Whympster. An account of the recent changes in Morocco is given in *The Passing of the Shereefian Empire*, by Ellis Ashmead Bartlett.

The rise of the new nationalism in Persia and the interest taken by Russia and Great Britain in the affairs of that country brought out books of widely varying character. Edward G. Browne, professor of Arabic at Cambridge, espouses the cause of Persian self-government in *The Persian Revolution of 1905-1909*. Dr. Sven-Hedin adds two more large volumes to his Asiatic explorations in *Overland to India*, the narrative of his journey from the Black Sea to Tibet. Besides which we have: *Through Persia from the Gulf to the Caspian*, by Francis Bradley Bradley-Burt; *Persia and Its People*, by Ella C. Sykes; *Persia and Turkey in Revolt*, by David Fraser. On Asiatic Turkey: *Amurath to Amurath*, by Gertrude Lowthian Bell; *By Desert Ways to Baghdad*, by Louisa Jebb; *A Military Consul in Turkey*, by Arthur Fitz-Henry Townshend; *The Land of the Hittites*, an account of the recent explorations and discoveries in Asia Minor, by John Garstang; *Fifty-three Years in Syria*, missionary experiences from 1855 to 1908, by Harry H. Jessup; *The Holy Land*, picturesquely described by Robert Smythe Hichens and illustrated by M. Guérin. There is a marked falling off in the

number of books on Japan, but there are two native works of importance: *Fifty Years of New Japan*, by Shigenobu Okuma; and *The Political Development of Japan, 1867-1909*, by George Etsujiro Ueyehara. On the other hand books on China pour from the press in increased abundance. There is also observable in recent years a marked improvement in their quality. China is no longer viewed as an object of mere curiosity, but efforts are made to understand its internal character and political movements. The mysteries of Court policies during the Boxer period are in part explained in *China under the Empress Dowager: The History of the Life and Times of Tzu Hsi*, by John Otway Percy Bland and E. Backhouse; and by the same authors, *Houseboat Days in China*. Of the numerous other volumes in this field we can only mention: *Changing China*, by Rev. Lord (Rupert) William (Ernest) Gascoyne Cecil and Florence Mary (Bootle-Wilbraham) Lady Cecil; *China and the Far East*, 22 Clark University lectures by different men, edited by George Hubbard Blakeslee; *China, Its Marvel and Mystery*, by T. Hodgson Liddell; *A Scamper Through the Far East*, including a visit to the Manchurian battlefields, by Herbert Henry Austin; *The Russian Road to China*, by Lindon Wallace Bates, Jr.; *Tramps in Dark Mongolia*, by John Hedley; *Gleanings from Fifty Years in China*, by Archibald Little; *China as I Saw It*, by A. S. Roe; *My Life in China and America*, by Yung Wing; *China*, by Mortimer Menpes; *China*, by Lena E. Johnston; *Religion of the Chinese*, by Jan Jakob Maria de Groot; *Islam in China*, by Marshall Broomhall; *Gilds of China*, with an account of the Gild Merchant or Cohong of Canton, by Hosea Ballou Morse.

India has also attracted an unusual amount of attention, on account of its political unrest and besides the books dealing with this phase, there are some ethnological and geographical works of permanent value. The following list is representative of the various kinds: *Castes and Tribes of Southern India*, by Edgar Thurston, superintendent of the Madras Museum, an encyclopædic work in seven volumes; *Sikhism and Bhutan*, twenty-one years on the northeast frontier of India, 1887-1908, by John Claude White; *The Sikh Religion*, its Gurus, sacred writings and authors, in six volumes, by Max Arthur Macauliffe; *Peaks and Glaciers of Nun Kun*, a record of pioneer exploration and mountaineering in Punjab Himalaya, by Mrs. Fanny Bullock Workman and William Hunter Workman; *Twenty Years in the Himalaya*, by Major C. G. Bruce; *Jungle Byways in India*, by E. P. Stebbing; *The Gates of India*, by Sir Thomas Hungerford Holdich; *India and Tibet*, by Sir Francis Younghusband, leader of the British Mission to Lhasa in 1904; *Modern India*, by Sir J. D. Rees; *Indian Unrest*, by Valentine Chirol; *The Awakening of India*, by J. Ramsay MacDonald; and *India*, by J. Keir Hardie. The two volumes last named are critical of the British administration. The volumes by Rees and Chirol are written from the imperialistic standpoint. Here may be conveniently mentioned: *Travel and Sport in Turkestan*, by John Nicholas Price Wood; *On and Off Duty in Anam*, by Gabrielle M. Vassal; *The Shans at Home*, by Mrs. Leslie Milne; *Ancient Ceylon*, the aborigines and early civilization, by H. Parker; *Melanesians of British New Guinea*, by

Charles Gabriel Seligman; *The Maoris of New Zealand*, by James Cowan; *Wanderings Among South Sea Savages and in Borneo and the Philippines*, by H. Wilfred Walker; *The New New Guinea*, by Beatrice Grimshaw; *Melanesians and Polynesians*, by George Brown; *Coral and Atolls*, by F. Wood-Jones; *A Vagabond Journey Around the World*, by Harry Alverson Franck.

Geographical literature on the United States and Canada shows of late a fondness for waterways: *The Mississippi River and Its Wonderful Valley*, by Julius Chambers; *Lake George and Lake Champlain*, by William Maxwell Reid; *American Inland Waterways*, by Herbert Quick; *The Picturesque St. Lawrence*, by Clifton Johnson; and *Highways and Byways of the Rocky Mountains*, by the same author; *The Old North Trail*, life, legends, and religion of the Blackfeet Indians, by Walter McClintock; *My Friend the Indian*, by James McLaughlin, experiences of an old Indian fighter; *Romantic California*, a painter's view, by Ernest Clifford Peixotto; *The New North*, by Agnes Deans Cameron; *The Great Pacific Coast*, by C. Reginald Enock.

Books on countries south of the United States are more numerous than ever: *Terry's Mexico*, a handbook for travelers; *Beyond the Mexican Sierras*, by Dillon Wallace; *Cuba*, by Irene Aloha Wright; *Health, Progress, and Administration in the West Indies and Mosquito or Man?* "The Conquest of the Tropical World," by Sir Rubert William Boyce; *Central America and Its Problems*, a journey from the Rio Grande to Panama, by Frederick Palmer; *Panama and the Canal To-day*, by Forbes Lindsay; *Our Search for a Wilderness*, ornithological trips up the Orinoco and in Guiana, by Mary Blair Beebe and Charles William Beebe; *Following the Conquistadores* up the Orinoco and down the Magdalena, by H. J. Mozans; *The Incas of Peru*, by Sir Clements Markham; *Islands of Titicaca and Koati*, by Adolph Francis Alphonse Bandler, an exhaustive archaeological study; *Argentina Past and Present* by W. H. Koebel; *Argentina*, by William Alfred Hirst; *The Andes and the Amazon*, by C. Reginald Enock; *Brazil*, by N. O. Winter.

Books of travel as distinguished from exploration indicate changes in the trend of tourist currents. The popularity of the Mediterranean cruise has brought out a number of volumes on the islands of the Mediterranean aiming to supplement the guide-book and to supply the sightseer with such historical information and art criticism as he needs to appreciate what he sees. Greater interest than formerly is manifested in Spain, and the revolution in Turkey has called out books of travel as well as ethnological studies. The following list of representative books on European countries will serve to illustrate these characteristics: *The Mediterranean and Its Borderlands*, by Joel Cook; *A Mediterranean Cruise*, by Bruce Millard; *Elba and Elsewhere*, by Don Carlos Seitz; *Romantic Corsica*, by George Renwick; *Diversions in Sicily*, by Henry Festing Jones; *Sicilian Days and Ways*, by Louise Caico; *Susan in Sicily*, by Josephine Tozier; *My Experiences of Cyprus*, by Basil Stewart; *Greek Lands and Letters*, by Francis Greenleaf Allinson and Anne Crosby Emery Allinson; *Italian Fantasies*, by Israel Zangwill, humorous and poetic reflections on the art and life of Italy; *Bologna*, its history, antiquities, and art, by Edith E. Coulson James; *Rome*, by Edward

Hutton; *Pompeii*, by William Munro MacKenzie; *Walks and People in Tuscany*, by Sir Francis Patrick Fletcher Vane; *Siena and Southern Tuscany*, by Edward Hutton; *In and Out of Florence*, a new introduction to a well-known city, by Vernon Lyman Kellogg (Max Vernon); *Spain of the Spanish*, by Mrs. Janie Villiers Wardell; *A Corner in Spain*, by Walter Wood; *Spain from Within*, by Rafael Shaw; *Quiet Days in Spain*, by C. Bogue Luffman; *Rambles in Spain*, by John Driscoll Fitz-Gerald; *Cathedral Cities in Spain*, by W. W. Collins; *Portugal*, its land and people, by W. H. Koebel; *Unexplored Spain*, by Abel Chapman and Walter J. Buck; *The Revolution in Constantinople and Turkey in 1909*, by Sir William Mitchell Ramsay; *The Fall of Abd-ul-Hamid*, by Francis McCulloch; *Bosnia and Herzegovina*, by Maude M. Holbach; *The Servian People*, by Prince Lazarovich-Hrebelianovich; *Hungary*, by Adrian and Marianne Stokes; *Bohemia and the Czechs*, by Will Seymour Monroe; *Finland as It Is*, by Harry De Windt; *In the Rhone Country*, by Rose Kingsley; *Brittany and the Bretons*, by George Wharton Edwards; *Switzerland of the Swiss*, by Franck Webb; *A Wanderer in Paris*, by E. V. Lucas; *The Real France*, by Lawrence Jerrold; *A Scot in France and Switzerland*, by D. T. Holmes; *Rivers and Streams of England*, by Arthur Granville Bradley; *Avon and Shakespeare's Country*, a discreetly historical work by the same author; *The Tower of London*, by Richard Davey; *Cathedral Churches of England*, by Helen Marshall Pratt.

PHILOSOPHY AND RELIGION. Special bibliographies may be found in the articles on PHILOSOPHY, PSYCHOLOGY, EDUCATION, BIBLICAL CRITICISM, etc., but here should be mentioned some works of interest to the general reader. Pragmatism continues to be the storm centre in speculative thought. *The Pluralistic Universe*, by the late William James, introduced to the general reader the French philosopher Henri Louis Bergson, and we have translations of two of his works; *Matter and Memory* and *Time and Free Will* (*Essai sur les données immédiates de la conscience*), with the promise of his *Creative Evolution*. Other works for and against the pragmatic philosophy are: *How We Think* and *The Influence of Darwin on Philosophy and Other Essays on Contemporary Thought*, by John Dewey; a new edition of the *Riddles of the Sphinx*, by F. C. S. Schiller; *The Principles of Pragmatism*, by Henry Heath Bawden; *Pragmatism and Its Critics*, by Addison Webster Moore; *Philosophical Essays*, by Bertrand Russell; *Old Criticism and New Pragmatism*, by John M. O'Sullivan; *Anti-Pragmatism*, by Albert Schinz; *Theology and Human Problems*, by Eugene William Lyman. The following titles are representative of the leading topics of philosophical and religious thought during the year: *Psychology of Religious Experience*, by Edward Scribner Ames; *The Development of Religion*, a study in anthropology and social psychology, by Irving King; *Twice-Born Men*, a clinic in regeneration, by Harold Begbie; *Regeneration*, being an account of the social work of the Salvation Army in Great Britain, by H. Rider Haggard; *Spiritual Unrest*, by Ray Stannard Baker; *The Durable Satisfaction of Life*, by Charles William Eliot; *The Gospel and the Modern Man*, by Shailer Mathews; *The Faith of a Layman*, by William Frederick Osborne; *Personality and the Christian Ideal*, by John

Wright Buckham; *Individualism*, by Warner Fite; *The Church and the World in Idea and History*, by Walter Hobbouse; *Knowledge, Life, and Reality*, by George Trumbull Ladd; *The World a Spiritual System*, by James Henry Snowden; *Idealism as a Practical Creed*, by Henry Jones; *Reason and Belief*, and *The Survival of Man*, by Sir Oliver Joseph Lodge; *Subconscious Phenomena*, by Hugo Münsterberg; T. Ribot, and others; *The Newer Spiritualism*, by Frank Podmore; *Consciousness*, by Henry Rutgers Marshall; *Philosophy of the Enlightenment*, by John Grier Hibben; *Stoic and Epicurean*, by Robert Drew Hicks.

**POLITICAL AND SOCIAL SCIENCE.** The more striking characteristic of the year is the increased attention being given to problems of heredity, eugenics, immigration and race conflicts. Besides a translation from the German by James Lees of Houston Stewart Chamberlain's *Foundations of the Nineteenth Century*, we have among many others: *The Conflict of Color*, by "B. L. Putnam Weale" (Bertram Lenox Simpson), directed against the "yellow peril"; *The Negro in the New World*, by Sir Harry H. Johnston; *The Southern South*, by Albert Bushnell Hart; *The Story of the Negro*, by Booker Taliaferro Washington; *Through Afro-America*, an English reading of the race problem, by William Archer; *Race Distinctions in American Law*, by G. T. Stephenson; *The Indian and His Problem*, by Francis Ellington Leupp; *Our Slavic Fellow Citizens*, by Emily Greene Balch; *The German Element in the United States*, by Albert Bernhardt Faust; *The Jews*, a study of race and environment, by Maurice Fishberg; *The Family and the Nation*, a study in natural inheritance and social responsibility, by William Cecil Dampier Whetham and Catherine Durning Whetham; *Parenthood and Race Culture*, by C. W. Saleeby; *Laws of Heredity*, by George Archdall O'Brien Reid; *Eugenics*, by Charles B. Davenport. The political and economic status of woman is the subject of many volumes: *Equal Suffrage*, an investigation of the workings of woman suffrage in Colorado, by Helen Laura Sumner; *The Wrong and Peril of Woman Suffrage*, by James Monroe Buckley; *What Eight Million Women Want*, by Rita Childe Dorr; *Women in Industry*, by Edith Abbott; *Women and the Trades*, Pittsburg, 1907-1908, by Elizabeth Beardsley Butler; *The Education of Women*, by Marion Talbot; *The Lady*, studies of certain phases of her history, by Emily James (Smith) Putnam; *Wage Earning Women*, by Annie Marion MacLean; *Short History of Progress of Woman's Rights, from the Days of Augustus to the Present Time*, by Eugene A. Hecker.

As in former years, labor questions, socialism, municipal government, and political reform are prominently represented in the books of 1910: *Labor in Europe and America*, by Samuel Gompers; *The Future of Trade Unionism and Capitalism in a Democracy*, by Charles William Eliot; *Men, the Workers*, by Henry Demarest Lloyd; *Latter Day Sinners and Saints*, by Edward Alsworth Ross; *Twentieth Century Socialism*, what it is not, what it is, how it will come, by Edmond Kelly; *The Menace of Socialism*, English in data and tone, by W. Lawler Wilson; *Democracy and the Overman*, by Charles Zueblin; *Men versus The Man*, letters on Socialism, by Robert Rives La Monte and Henry Louis Mencken; *The New Socialism*,

an impartial inquiry, by Jane T. Stoddart; *Socialism and the Social Movement*, by Werner Sombart; *Economic Causes of Great Fortunes*, by Anna Youngman; *The History of the Great American Fortunes*, in three volumes, by Gustavus Myers; *Types from City Streets*, by Hutchins Hapgood; *Housing Reform*, a handbook for practical use in American cities, by Lawrence Veiller; *Great Cities in America*, their problems and their government, and *Municipal Franchises*, by Delos Franklin Wilcox; *Dethronement of the City Boss*, by John Judson Hamilton; *American Problems from the point of view of a psychologist*, by Hugo Münsterberg; *Popular Law Making*, by Frederic Jesup Stimson ("J. S. of Dale"); *American Government and Politics*, by Charles Austin Beard; a new edition of the *American Commonwealth and Hindrances to Good Citizenship*, Yale lectures, by James Bryce; *People's Law*, popular participation in law-making from ancient folk-moot to modern referendum, a study in the evolution of democracy and direct legislation, by Charles Sumner Lobingier; *Privilege and Democracy in America*, by Frederic Clemson Howe, a disciple of Henry George; *Darwinism and Modern Socialism*, by Frederick Webb Headley; *Highways of Progress*, by James J. Hill; *Economics of Railway Transport*, by Sydney Charles Williams; *Government Ownership of Railways* considered as the next step in American progress, by Anthony Van Wagenen; *Conservation of Natural Resources in the United States* by Charles Richard Van Hise; *The Old Order Changeth*, by William Allen White, an optimistic view of democracy in action; *The Spirit of America*, seven of the Hyde lectures given at the University of Paris in 1909, by Henry Van Dyke; *Conditions of Progress in Democratic Government*, by Charles Evans Hughes; *The Junior Republic*, by William Reuben George; *Totemism and Exogamy*, a treatise on certain early forms of superstition and society by James George Fraser; *Punishment and Reformation*, a study of the penitentiary system by Frederick Howard Wines; *The Humane Movement*, a descriptive survey, prepared on the Henry Bergh Foundation for the promotion of humane education in Columbia University, by Roswell Cheney McCrea; *Conquest of Disease through Animal Experimentation*, a calm and convincing study of vivisection, by James Peter Warbasse; *Ancient and Modern Imperialism*, by Evelyn Baring, Earl of Cromer; *The Project of Empire*, a critical study of the economics of imperialism, with special reference to the ideas of Adam Smith, by Joseph Shield Nicholson; *The Hague Peace Conferences* and other international conferences concerning the laws and usages of war by Alexander Pearce Higgins; *The Great Illusion*, an investigation of the economics of war, by Norman Angell. See also bibliographies in the articles on **POLITICAL ECONOMY** and **SOCIOLOGY**.

**LITHIUM.** See **ATOMIC WEIGHTS**.

**LITTLE, A.** See **LITERATURE, ENGLISH AND AMERICAN, Travel and Description**.

**LITTLE, FRANCES.** See **LITERATURE, ENGLISH AND AMERICAN, Fiction**.

**LITTLE BALLOT.** See **INITIATIVE AND REFERENDUM**.

**LIVERPOOL HARBOR.** See **DOCKS AND HARBORS**.

**LIVESTOCK.** See livestock statistics in articles on countries; also **STOCK RAISING**.

**LIVING, COST OF.** See **PRICES** and **AGRICULTURE**.

**LLOYD, H. D.** See **LITERATURE, ENGLISH AND AMERICAN, Political and Social Science**.

**LLOYD-GEORGE, DAVID.** See **GREAT BRITAIN**.

**LOAN AND TRUST COMPANIES.** The growth of banking institutions in the United States during the past ten or twelve years has no parallel in other countries; yet loan and trust companies have experienced by far the most rapid part of this growth. According to the report of the Comptroller of the Currency they numbered 246 in 1898; 683 in 1905; 842 in 1908; 1079 in 1909, and 1091 in 1910. Their aggregate resources in 1908 were \$2,865,600,000; on June 30, 1910, they were \$4,216,850,000, an increase of 48 per cent. in two years. This growth is accounted for by the great scope of the activities of these companies, including the banking operations of commercial and savings banks and the special care of trust estates; and also by the great freedom from restrictions as compared with national banks. The prominence of trust companies in the panic of 1907 led to an increased requirement of reserve against deposits. During the year Senator Aldrich, head of the National Monetary Commission (q. v.), and Secretary of the Treasury, MacVeagh, advocated the extension of the privileges of national banks so as to allow them to compete with trust companies in their special field. The assets of these companies in June, 1910, included: loans and discounts, \$2,256,572,000; bonds and other securities, \$1,000,263,000; cash on hand, \$260,129,000. Their liabilities included: capital, \$367,333,000; surplus, \$432,718,000; individual deposits, \$3,073,122,000. They had 3,572,169 depositors, of whom 2,260,268 had savings accounts. They held 14.2 per cent. of all bank deposits in 1900, and 20.1 per cent. in 1910.

The Eastern States had 505 of these companies, with aggregate resources of \$2,657,262,000; the Middle Western States had 242, with resources of \$877,839,000; and New England 158, with resources of \$532,567,000. Pennsylvania alone had 304, with resources of \$716,469,000; and New York had 85, with \$1,622,000,000 resources. There were 129 in the Southern States; 32 in the Western; and 25 in the Pacific States.

*Bradstreet's* reported only 3 failures of loan and trust companies during the year. This compared with 6 in 1909, 15 in 1908, and 17 in 1907. The total liabilities were only \$276,000, and assets \$172,000, these figures being smaller than in any year since 1893, except 1895, 1900, 1901, and 1902. They contrasted sharply with liabilities of \$4,185,000 in 1909; \$12,547,800 in 1908, and \$118,338,000 in 1907. See **BANKS AND BANKING**.

The foregoing data refer only to those companies doing a banking business and reporting voluntarily to the Comptroller of the Currency. A compilation, *Trust Companies of the United States*, reported 1527 companies on June 30. From this report it appears that the value of estates held in trust and administered by these companies approximates twenty-five billion dollars, a sum indicating that with many of these companies the strictly trust business is vastly more important than their banking business.

**LOANS.** See **BANKS AND BANKING**.

**LOBINGIER, C. S.** See **LITERATURE, ENG-**

**LISH AND AMERICAN, Political and Social Science**.

**LOCAL OPTION.** See **PROHIBITION**.

**LOCKE, W. J.** See **LITERATURE, ENGLISH AND AMERICAN, Fiction**.

**LOCKYER, WINIFRED.** See **LITERATURE, ENGLISH AND AMERICAN, Essays and Literary Criticism**.

**LOCKYER, Sir NORMAN.** See **LITERATURE, ENGLISH AND AMERICAN, Essays and Literary Criticism**.

**LOCOMOTIVE CONSTRUCTION.** See **RAILWAYS**.

**LOCOMOTOR ATAXIA.** See **ARSENOBENZOL**.

**LOCUST PEST.** See **ENTOMOLOGY**.

**LODGE, H. C.** See **MASSACHUSETTS**.

**LODGE, Sir O. J.** See **LITERATURE, ENGLISH AND AMERICAN, Philosophy and Religion**.

**LOEB, WILLIAM, Jr.** See **UNITED STATES, Customs**.

**LOGIC.** See **PHILOSOPHY**.

**LONDON, DECLARATION OF.** The Declaration signed by the representatives of the leading naval Powers in the conference held in London from December, 1908, to February, 1909, on the subject of rules of prize in naval warfare was the subject of much discussion in 1910. The important convention of The Hague Conference of 1907 providing for an International Prize Court had not been ratified by the Powers on account of the indeterminate basis for the proposed court's decisions, and in 1908 the British government invited the representatives of the nine chief naval Powers to meet in conference at London "in order to arrive at an agreement as to what are the generally recognized rules of international law within the meaning of the convention relative to the establishment of an International Prize Court." The conference resulted in the Declaration of London, which in 1910 was still awaiting ratification. In general it aimed at reform, not by radical changes, but by a greater degree of certainty and uniformity in present practice. Its chief proposal was the precise determination of contraband articles. On this point it followed the traditional English prize law usage of a division of contraband goods into articles absolutely contraband and articles conditionally contraband. To the former class belong arms, equipments, etc., used exclusively for war, and to the latter foodstuffs, clothing, fuel and other materials which may be used either for war or for peaceful purposes. The former class is liable to capture if "shown to be destined to territory belonging to or occupied by the enemy or the armed forces of the enemy." Conditional contraband is liable to capture only when taken on a vessel bound for the enemy's territory, unless the enemy has no seaboard, in which case its ultimate destination determines its status. Thus the doctrine of "continuous voyage" applies to absolute contraband but not to conditional contraband, unless the country is without a seaboard. Articles not susceptible of war use may not be declared contraband. The vessels carrying contraband may be condemned if the goods form more than half of the cargo. Neutral prize vessels or their cargoes are not to be destroyed except for reasons of "exceptional necessity." Neutral vessels under convoy are to be immune from search. As to block-

ade the English rule is to be followed with some slight modifications. To be binding, a blockade "must be maintained by a force sufficient really to prevent access to the enemy's coast line." The doctrine of "continuous voyage" is not to apply to blockade. Knowledge of blockade is to be presumed if the neutral vessel has left port after her government has been notified of the blockade; but the neutral vessel must receive notice if she approaches the blockaded port without knowledge, actual or presumptive. Further provisions of the Declaration concern the unneutral service of neutral vessels, resistance to search, the transfer of the enemy's merchant vessels to a neutral flag, compensation to neutrals for injuries, etc. In certain quarters the rules laid down in the Declaration were severely criticised. The London Chamber of Commerce, for example, protested against ratification of it in its present form (November 14, 1910), urging among other reasons that it radically altered the Law of Nations, that it exposed food supplies in neutral vessels to capture or destruction, that it contained no provision against the conversion of merchant ships into commerce destroyers, that the principle of the destruction of neutral prizes would work injury, that it would impair the nation's strength in time of war, and in general that it was framed without regard to the difference in situation between Great Britain and Continental countries, the former being an island and without neutral ports to fall back upon.

**LONDON, JACK.** See **LITERATURE, ENGLISH AND AMERICAN, Poetry and Drama.**

**LONDON TO MANCHESTER RACE.** See **AERONAUTICS.**

**LONG AND SHORT HAUL.** See **RAILWAYS.**

**LOOFTZ, LUDWIG VON.** A German painter, died December, 1910. He was born at Darmstadt in 1845 and was a pupil of Kreling and Raupp at Nuremberg and then of Diez at the Academy of Munich where in 1879 he became professor. He was made director of this institution in 1891, serving in that position until 1899. His paintings showed great technical skill and are of great perfection. They include "A Cardinal Playing the Organ" (1876), "A Picture of Franz Liszt," "Avarice and Love" (1879), in the Vanderbilt collection, New York City, and "Erasmus in his Study." He won a gold medal at the International Exhibition in Munich in 1883 with the "Pieta." For the Cathedral at Freising he painted in 1889 a large altar piece, "The Assumption of the Virgin."

**LOOKER, THOMAS HENRY.** Rear-Admiral, retired, of the United States Navy, died July 21, 1910. He was born in Cincinnati in 1829, and was educated at the United States Naval Academy. He was appointed midshipman in 1846, but resigned in 1852. In the following year he was appointed purser in the United States Navy, serving until 1871, when he became pay director. In 1906 he was retired with the rank of rear-admiral for creditable service during the Civil War. In 1877 he was assistant to the Secretary of the Navy and in 1889-90 was general inspector of the pay corps. In the latter year he was appointed paymaster-general.

**LORDS, HOUSE OF.** See **GREAT BRITAIN.**

**LOREBURN, Lord.** See **GREAT BRITAIN, Government.**

**LORIMER, WILLIAM.** See **ILLINOIS.**

**LOS ANGELES.** See **STRIKES AND LOCK-OUTS.**

**LOS ANGELES AQUEDUCT.** See **AQUEDUCTS.**

**LOS ANGELES AVIATION MEETS.** See **AERONAUTICS.**

**LOS ANGELES WATER WORKS.** See **AQUEDUCTS.**

**LOUISIANA.** One of the Gulf States of the United States. It has an area of 48,506 square miles, of which 3097 square miles are water. Its capital is Baton Rouge.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 1,656,399, as compared with 1,381,825 in 1900 and 1,118,588 in 1890. The gain in the decade 1900 to 1910 was 19.9 per cent. The State ranks twenty-fourth in point of population whereas in 1900 it ranked twenty-third. The population of the larger cities and towns will be found in the tables in the article **UNITED STATES CENSUS.**

**MINERAL PRODUCTION.** The most important mineral product of the State is petroleum. There were produced in 1909 3,059,531 barrels, valued at \$2,022,449. This was a great decrease from the production of 1908, which was 5,778,874 barrels valued at \$3,503,419. The production is chiefly from the Jennings and Caddo fields. In 1910 three important gushers were struck in the oil field and there was a considerable increase in the production in the north-western part of the State in which this field is situated, as compared with a decline in the southern part of the State. The output of oil increased notably during the year and amounted to over \$5,000,000. This required the construction of two additional pipe lines to Texas ports. The pipe line of the Standard Oil Company was completed during the year from Oklahoma to the refinery at Baton Rouge, La. The State legislature passed measures during the year, calling for a vote of the people on the establishment of a system of protection against the waste of natural gas in the Caddo field. The resultant vote ratified these measures. In October the Standard Oil Company purchased over 100,000 acres of proved oil territory in the James Bayou region and actively continued development work during the year. Other important acquisitions by lease were made by the Producers' Oil Company. The State is a large producer of sulphur in which it dominates the world's trade. It also produces large quantities of salt. The clay products are important as is also the mineral water.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909-10 are shown in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	2,293,600	58,835,000	\$32,359,000
1909.....	2,228,000	51,198,000	35,327,000
Oats, 1910.....	36,000	774,000	379,000
1909.....	32,000	640,000	397,000
Rice, 1910.....	371,200	12,769,000	8,555,000
1909.....	375,000	12,679,000	10,013,000
Potatoes, 1910..	20,000	1,100,000	990,000
1909.....	16,000	1,200,000	1,092,000
Hay, 1910.....	25,000	44,000a	506,000
1909.....	23,000	34,000	394,000
Tobacco, 1910..	500	275,600b	682,750
1909.....	400	220,000	81,400
Cotton, 1910....		280,000c	
1909.....		253,412	

a Tons. b Pounds. c Bales.

**EDUCATION.** The total enrollment in the elementary schools of the State in 1909 was 174,984, of whom 78,862 were colored. The average attendance in the elementary schools was, 128,022 white pupils, and 54,637 colored. The average monthly salary of white male teachers is \$75.29, white female teachers, \$50.80; of colored male teachers, \$34.25, colored female teachers, \$28.67. The total value of the school property in the State is \$7,805,926. The total disbursements for the fiscal year ending July 1, 1910, were \$4,470,883. The total number of teachers, white and colored male and female, was 6286.

#### POLITICS AND GOVERNMENT

**LEGISLATIVE SESSION.** Louisiana was one of the few States in which the legislature was in session in 1910. Besides the regular session which convened in May, two extra sessions were held. At the regular session the matter of ratifying or rejecting the income tax amendment to the Federal constitution resulted in complications. Governor Sanders in referring the question to the General Assembly on May 16 declared his opposition on the ground that it would permit Congress to tax the income from State bonds and thus practically tax State bonds, a power which it does not now possess. This view was endorsed to some extent by the press of the State which had hitherto supported the amendment. The Speaker of the House, however, favored the passage of the amendment as a Democratic measure. The Senate agreed with the attitude of the governor and sought to dispose of the question by declaring in favor of submitting the proposition to the voters by referendum, the voters to decide and to instruct the next legislature how to vote on the question. This would delay action on the matter for two years and would leave the result largely dependent on which faction won in the Democratic primary. On June 2 the House approved the amendment which had already been rejected by the Senate.

Senator McEnery (q. v.) died in July, and it was necessary for the legislature, then in regular session, to elect his successor. That body chose Governor Jared Young Sanders. Governor Sanders accepted the office, asking for a few weeks in which to finish up his affairs as governor. In the meanwhile the legislature was called in extra session. Following its adjournment the governor withdrew his acceptance of the senatorship on the ground that he could accomplish more in bringing to New Orleans the Panama Exposition as governor than as United States Senator. He appointed as Senator, to fill out the unexpired term of Senator McEnery, Judge T. B. Thornton of Alexandria. The action of Governor Sanders in declining the office to which he had been elected by the legislature and naming another man to fill the vacancy was without precedent, and there was some doubt as to whether the appointment of Judge Thornton would be accepted by the United States Senate. In November it became apparent that a second extraordinary session of the legislature would be necessary to amend an act passed at the regular session authorizing the Sewerage and Water Board of New Orleans to sell bonds for the completion of certain public improvements. When the legislature met in extra session December 6, Judge Thornton was duly elected United States Senator by a large majority, but

only after a contest that emphasized the division in the Democratic party of the State. The legislature of Louisiana is unanimously Democratic. The laws of the State require that all United States Senators shall be nominated by primary, and the opposition to the present administration urged the legislature to submit the names of candidates to the voters. The General Assembly, by a vote of 87 to 53, refused to do this, and ratified the appointment made by Governor Sanders by electing Judge Thornton.

The first extra session of the legislature was called primarily to pass upon a constitutional amendment, later submitted to and ratified by the voters of the State, authorizing a special tax to raise \$6,500,000 for the World's Panama Exposition in New Orleans in 1915.

**PARTY POLITICS.** Dissatisfaction with the methods of the administration of the State and the city of New Orleans resulted in the organization of the Democratic Good Government League, which promises to take a prominent part in the political affairs of the State and city in 1912.

The regular Democratic organization in New Orleans has for the past ten years been in absolute control of all public offices. The organization is dominated by the leaders of the seventeen wards of the city. These seventeen leaders are known locally as the "bosses" and their organization as the "ring." Their emblem is the rooster.

City and State elections are held every four years—the State elections in April, the city elections the following November. To qualify to vote in any of these elections it is necessary to have paid the poll tax the two preceding years—to vote in 1912, one must have paid the poll tax in 1910 and 1911.

At the last State election the vote of New Orleans was about 33,000. There was no opposition to the "ring" in the city election of 1908. The poll taxes paid for 1910 (52,052) indicate that the vote in 1912 will be much larger than in past years.

Identified with the Democratic Good Government League are many of the most prominent men of the State. The league has permanent quarters in New Orleans, and is perfecting a very thorough organization throughout the State. Its policy is to keep out of municipal and parish contests, outside of New Orleans, and to devote all its attention to the election of State officers, members of the legislature and all the officials of New Orleans. The reason given for taking part in the affairs of the city is that the city "ring" practically controls the State machine. In municipal elections, any reform or independent movement can depend upon practically solid support from the Republicans. In New Orleans, every time there has been a serious independent movement or campaign, the "ring" has been defeated.

Congressman Samuel L. Gilmore, representing the Second District of Louisiana (comprising nine wards of the city of New Orleans and four rural parishes or counties) died July 18. H. Garland Dupre of New Orleans was elected to fill the vacancy for the unexpired term and to the regular term beginning March 4, 1911. At the time of his election to Congress, Mr. Dupre was Speaker of the House in the General Assembly and first assistant City Attorney of New Orleans.

**OTHER EVENTS.** A strong propaganda was carried on during the year to bring the Panama Exposition, to be held in 1915, to New Orleans, and in the November election among the measures voted on was the constitutional amendment (mentioned above) permitting the State to raise \$6,500,000 for the proposed exposition in New Orleans. An investigation by the Federal grand jury, carried on in April against alleged frauds in weighing sugar at the Custom House at New Orleans showed that no such frauds had been perpetrated. During the year arrangements were made by the immigration authorities of the State to bring 1000 peasant families from France to settle and cultivate 50,000 acres of land in the southwestern part of the State. This movement had its inception in the activities of a French citizen, Gustav Camoin. He came to Louisiana and signed a preliminary contract for the purchase of the land. He then returned to France, organized two corporations and made a lecture tour of the provinces telling of the salubrity and fruitfulness of the State. The first 100 families of the new immigration will land at New Orleans in February, 1911. Others will follow as fast as the land can be opened up for settlement. On April 22 the city of Lake Charles was practically destroyed by fire, which rendered 3000 people homeless, and destroyed property valued at over \$3,000,000. The fire started in the centre of the city's business district and spread into the residential quarters. Many beautiful and historic homes were destroyed and among the public buildings burned were the new Court House and City Hall. The Catholic church and convent which dates before American occupation of Louisiana was burned.

The most important business development of the year was the movement of Northern and Western farmers to the southern part of central Louisiana. Within the past five years many millions of Northern capital have been invested in the "marsh lands" of Louisiana. Wide areas that were once considered useless, because subject to overflows, have been reclaimed by the modern system of levees that protect them from the annual floods of the Mississippi and other rivers, and by an extensive system of drainage canals have been prepared for cultivation. These lands are now producing remarkable crops of vegetables and farm products of all kinds. During the past autumn and winter there has been a steady movement of Northern and Western farmers to this part of Louisiana, and present indications are that this immigration will add much to the wealth and prosperity of the State.

**STATE OFFICERS.** Governor, J. Y. Sanders; Lieutenant-Governor, P. M. Lambbement; Secretary of State, J. T. Michel; Auditor, Paul Capdeville; Treasurer, O. B. Steele; Attorney-General, Walter Guion; Superintendent of Education, T. H. Harris; Commissioner of Agriculture, Charles Schuler; Commissioner of Insurance, Eugene J. McGuney; Commissioner of Public Lands, Fred J. Grace—all Democrats.

**SUPREME COURT.** Chief Justice, J. A. Breaux; Associate Justices, A. D. Land, F. T. Nichols, Frank A. Monroe, O. O. Provosty; Clerk, Paul E. Mortimer—all Democrats.

**STATE LEGISLATURE, 1911.** Both Houses Democratic: Senate, 41; House, 116.

**LOVERING, WILLIAM C.** An American public official, member of Congress from Massa-

chusetts, died Feb. 4, 1910. He was born in Rhode Island in 1835 and was educated at the Cambridge High School and the Hopkins Classical School. He entered the field of cotton manufacturing and soon became manager of the Whittenton Manufacturing Company of Taunton, Mass. He subsequently became director and manager of many other cotton manufacturing. During the Civil War he served for a time as engineer at Fortress Monroe, but was obliged to resign from the service on account of ill health. In 1874-5 he was a Senator in the Massachusetts legislature and in 1880 he was a delegate to the National Republican Convention. From 1897 to 1903 he was a member of Congress from the 12th Massachusetts district and from 1903 to the time of his death from the 14th district. Mr. Lovering was the oldest member of the Massachusetts delegation in Congress and was serving his seventh consecutive term.

**LOW, ALEXANDER.** A Scotch jurist, died October 14, 1910. He was born in 1845 and was educated at Cambridge University and at Edinburgh University. In 1870 he was admitted as a member of the Faculty of Advocates. In 1889 he was appointed sheriff of Ross, Cromarty and Sutherland, but occupied that position only until 1890, when he was raised to the bench, taking the title of Lord Low. During his service he decided a number of important cases. The most notable of these was that which arose out of the union of the Free and the United Presbyterian churches. Lord Low decided the case in favor of the defendants, but upon appeal to the House of Lords the judgment was reversed.

**LOYAL LEGION.** See **PATRIOTIC SOCIETIES.**

**LUCAS, E. V.** See **LITERATURE, ENGLISH AND AMERICAN, Fiction, Travel and Description.**

**LUFFMAN, C. B.** See **LITERATURE, ENGLISH AND AMERICAN, Fiction, Travel and Description.**

**LUMBER.** See **FORESTRY.**

**LUMSON, C. B.** See **LITERATURE, ENGLISH AND AMERICAN, History.**

**LUNACY.** See **INSANITY.**

**LUTECIUM.** See **ATOMIC WEIGHTS.**

**LUTHERAN CHURCH.** A religious denomination which includes the largest body of Protestants in the world, and is the mother church of the Protestant faith. It is found in nearly all parts of Europe and in Australia and North and South America in the largest numbers. Churches of the denomination, however, are scattered throughout the world. The denomination is carried on under Congregational, Presbyterian and Episcopal forms and church government is not considered essential. The great organizer of the church in the United States was Heinrich Melchior Muhlenberg, who arrived in 1742 and founded the ministerium of Pennsylvania, the mother Lutheran Synod in the United States, in 1748. The divisions of the denomination in the United States, with statistics in 1910, will be found below. The General Council, which is prevailingly English, but teaches the Gospel in German, Swedish and French, was founded in 1867. The Synodical Conference, prevailingly German, was founded in 1871. The United Synod of the South was founded in 1886. The four general bodies of Lutherans embrace two-thirds of the Lutherans in the United States. The chief independent synods are the United Norwegian Synod, the

Joint Synod of Ohio and the German Iowa Synod.

According to the religious census made by the United States in 1906 and published in 1910, the total number of communicants of the Lutheran faith in the former year was 2,112,494, with 11,194 church edifices and 7841 ministers. Statistics were taken of twenty-four Lutheran bodies. The statistics of the denomination given below are from the church authorities:

**THE GENERAL COUNCIL.** Ministers, 1590; congregations, 2461; communicant members, 479,575; value of church property, \$28,388, graded Bible schools of this section of the 301.00; benevolent offerings, \$519,093.55. The church number 2134, with 28,874 teachers and 260,466 pupils. In addition there are 594 parochial schools, with 26,588 pupils.

**THE GENERAL SYNOD.** Ministers, 1326; congregations, 1807; communicants, 286,325; church property, \$19,809,312; benevolent offerings, \$454,843.40; Sunday schools, 1715, with 28,401 teachers and 259,673 pupils.

**SYNODICAL CONFERENCE.** Ministers, 2713; congregations, 3356; communicants, 766,281; benevolent offerings, \$822,910.32; Sunday schools, 849; teachers, 4406; pupils, 98,370. This branch maintains 2655 parochial schools with 132,927 pupils.

**UNITED SYNOD OF THE SOUTH.** Ministers, 243; congregations, 464; communicants, 48,601; church property, \$2,042,942.00; benevolent offerings, \$72,244.83; Sunday schools, 369; teachers, 3797; pupils, 30,393.

**INDEPENDENT SYNODS.** Ministers, 2696; congregations, 5861; communicants, 624,029; church property, \$15,009,097.00; benevolent offerings, \$734,648.74; Sunday schools, 2363; teachers, 14,112; pupils, 152,670; parochial schools, 1577; pupils, 83,583.

**GRAND TOTAL.** Ministers, 8558; congregations, 13,939; communicants, 2,204,811; property (less Synodical Conference not reported), \$65,249,652.00; benevolence, \$2,603,740.84; Sunday schools, 7428; teachers, 79,590; pupils, 801,584; parochial schools, 4862; pupils, 244,198.

Probably the most significant movement of the year was toward strengthening theological educational work. The Chicago Theological Seminary has erected an entirely new and very complete group of buildings to the number of ten. The Philadelphia Theological Seminary inducted one new professor and created two more new chairs and also started the endowment of its magnificent Krauth Memorial Library. A new theological seminary for the Pacific Coast has been started on the Pacific Coast and still another determined upon by the several synods of Canada to be located in Toronto. All these have been within the General Council which has also perfected its relations with the seminary at Kropp, Germany, for the securing of missionary pastors for German-American mission work. The United Synod of the South has relocated its Seminary and has fine new buildings under construction at Columbia, S. C. This body is also at the same time engaged in establishing a seminary for its foreign work in Japan. Meanwhile a new Seminary has been opened, or rather an old one re-established in Michigan. The Missouri Synod significantly reports the largest attendance in its history at the Theological Seminary of that large German body in St. Louis, Mo.

All three Seminaries are conservative and teach the gospel of Christ in its original sense.

**LUXEMBURG.** An independent neutral grand-duchy in central Europe. Area, 998 square miles; population (1907), 250,911, nearly all Roman Catholics. Capital, Luxemburg (20,682 inhabitants), a dismantled fortress. Iron ore is the chief product. Mineral output (1908), 5,799,280 metric tons, valued at \$696,250 (miners, 5438). Luxemburg is a member of the German Customs Union. Railways (1907), 340 miles; telegraph lines, 680 (1410 miles of wires); telephone lines, 1030 (2990 miles of wires); telegraph offices, 227; post-offices, 116. Revenue (1910), estimated at 18,299,174 francs, including extraordinary (1909, 17,819,619); expenditure, including extraordinary, 18,656,619 francs (1909, 18,561,614); annuities, 493,130. Debt, 12,000,000 francs. Reigning grandduke, Wilhelm, born April 22, 1852; succeeded November 17, 1905; married June 21, 1893, Princess Maria Anna of Braganza (regent since November 18, 1908). Heiress-apparent (Act of July 6, 1907), Princess Marie, born June 14, 1894. A chamber of deputies (45 members) is directly elected by the cantons.

**LYMPH.** See TUBERCULOSIS.

**MCADOO, WILLIAM GIBBS.** See TUNNELS.

**MACAO.** A city on the Chinese island of Macao, at the mouth of the Canton River, constituting, with Coloane and Taipa (small adjacent islands), a Portuguese dependency. Area, 4 square miles; population, 63,991 (12,894 in Coloane and Taipa), of whom 3919 are white. The city has two wards, one Chinese, one non-Chinese, each with its own administrator. Imports (1908), 18,697,415 dollars Mexican (in junks, 5,253,621); exports, 17,755,135 (in junks, 7,050,299). The trade is largely transit, and in the hands of Chinese. Merchant vessels entered, 1895, of 1,005,595 tons; junks, 4655, of 3,999,350 piculs. Military force, at least 488 men. Estimated revenue and expenditure (1909-10) balanced at 639,136 milreis. Governor (1910), Capt. C. A. Marques. An unsettled boundary dispute with China resulted, in the summer of 1910, in fighting between the Chinese and Portuguese. A revolt occurred at the end of November among the soldiers and sailors, and the insurgents seized arms and ammunition and marched upon the government house, demanding increased pay, expulsion of religious orders, suppression of an offensive journal and the redress of other grievances. Some of these demands were granted.

**MACAULIFFE, M. A.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**MACBETH, ROBERT WALTER.** A British artist, died November 2, 1910. He was born in Glasgow in 1848 and was educated in Edinburgh and in Friedrichsdorf, Germany. He studied art at the Royal Scottish Academy schools. In 1871 he removed to London and for a time was on the staff of the *Graphic*. In 1874 he was elected an associate of the Royal Water Color Society and he was an original member of the Painter-Etcher Society.

**McCALLA, BOWMAN HENDRY.** An American rear-admiral, retired, died May 6, 1910. He was born in Camden, N. J., in 1844, and graduated from the United States Naval Academy in 1864. His first assignment after his graduation was on the steam sloop *Susque-*

**hanna** in the Brazil squadron in 1865 after the Civil War was over. From the *Susquehanna* he was transferred to the steam sloop *Brooklyn* in the South Atlantic squadron in 1866, and thence he went to the *Kearsarge* in the Pacific squadron. In 1887 while he was in command of the *Enterprise* in the European squadron he was court-martialled for striking a sailor with his sword. He was sentenced to be dismissed from the navy but before the order of dismissal could be promulgated, and through the intervention of other officers who knew his worth as a stern disciplinarian, the sentence was mitigated to three years' suspension from the service and the loss of numbers. His punishment was further softened and in 1891 an order was signed restoring him to duty, and in 1900 he was restored to his place in the navy list. At the beginning of the war with Spain he was in command of a small protected cruiser, *Marblehead*. He had brought discipline on this vessel to a high degree of perfection, and he directed the landing of the marines at Guantánamo Bay and led the forces of marines which drove back the Spaniards. During the time this position was held by the Americans, McCalla directed all affairs, won the confidence of the Cubans and superintended the landing of the great mass of supplies. McCalla was made a captain in 1898, and after a year's shore duty was attached to the Asiatic station. During the insurrection against the American forces he led a small band of 250 officers and men through the forests of Luzon to the relief of the city of Vigan. Six days later he received the formal surrender of the insurgents in the provinces of Isabella and Cagayan and in the Batan islands. During the Boxer outbreak in China in 1900 McCalla, then in command of the cruiser *Newark*, put himself at the head of 112 officers and men from his ship and joined the forces of relief under the British Admiral Seymour. He was at the battle of Tientsin, receiving a wound in that engagement. He was advanced three numbers in grade for his service during this campaign. He was later put in command of the new ship *Kearsarge* and in 1903 of the San Francisco naval training station. While he was at this post he was advanced to the grade of rear-admiral, and in 1903 he was commandant of the Mare Island Navy Yard in California, where he remained until he was retired in June, 1906.

**MacCALLUM, M. W.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**MacCARTHY, DESMOND.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**McCORMACK, T. J.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**MacCRACKEN, HENRY MITCHELL.** An American educator, retired September 28, 1910, as Chancellor of New York University. He was born at Oxford, O., in 1840 and graduated from Miami University in 1857. He studied at the U. P. Theological Seminary, at the Princeton Theological Seminary and at the universities of Tübingen and Berlin. In 1857-61 he was teacher and superintendent of schools in Ohio. He was ordained to the Presbyterian ministry in 1863 and from that year to 1867 was pastor of the Westminster Church, Columbus, O. From 1868 to 1881 he was pastor of the First Church of Toledo. He was professor of philosophy and chancellor of the West-

ern University of Pennsylvania (now the University of Pittsburgh) from 1881 to 1884. In 1884 he became professor of philosophy at New York University. From 1885 to 1891 he was vice-chancellor of the university, and from 1891 was chancellor. Under his administration the university became one of the prominent institutions of learning in the country. Largely through his efforts the site at University Heights was acquired and the great buildings, including the Library and the Hall of Fame, were erected thereon. Among his published writings are: *Tercentenary of Presbyterianism* (1870); *Leaders of the Church Universal* (1879); *Cities and Universities* (1882); *The Scotch-Irish in America* (1884); *Kant and Lotze* (1885); *John Calvin* (1888); *A Metropolitan University* (1892); *Educational Progress in the United States in the Quarter Century ending 1893: The Three Essentials* (1901), and *The Hall of Fame* (1901).

**McCREA, R. C.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**McCULLOGH, F.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**McCUTCHEON, GEORGE BARR.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**MacDONALD, J. R.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**MacDONALD, WILLIS GOSS.** An American surgeon, died December 30, 1910. He was born at Cobleskill, N. Y., in 1863, and was educated at the New York State Normal School and at Cornell University. He graduated from the Albany Medical School in 1887, and in 1889-90 studied at the University of Berlin. He was for several years resident surgeon and surgeon at the Albany Hospital, and was lecturer on surgery and adjunct professor of surgery at the Albany Medical School until 1895. In 1896 he became surgeon at the Albany Hospital, and in 1900 became professor of abdominal surgery at the Albany Medical College. He was major and surgeon of the United States Volunteers in 1898, and was in charge of the surgical division of depot hospitals at Fort McPherson, Georgia, during the Spanish-American war. From 1900 to the time of his death he was a member of the New York State Tuberculosis Commission. He was a member of many medical societies and was one of the most eminent surgeons in the United States. He contributed extensively to surgical journals.

**MacDOWELL, E. A.** See MUSIC.

**McENERY, SAMUEL DOUGLAS.** United States Senator from Louisiana, died June 28, 1910. He was born at Monroe, La., in 1827. He was educated at the Spring Hill College, United States Naval Academy and the University of Virginia. He studied law at the latter institution, and in the National Law School, receiving his degree in 1859. He served in the Confederate army during the Civil War, and at its close engaged in the practice of law. He served in the State legislature in the early 70's and in 1876 was the leader of the White League Movement in Northern Louisiana, which overthrew the negro and the Republican government. He was elected lieutenant-governor in 1879, and on the death of Governor Wiltz in 1881 he succeeded to the governorship. He was re-elected in 1884 but was defeated for nomination in the Democratic convention in 1888. Upon his retirement from the office of governor

he was appointed by his successor associate justice of the State Supreme Court. In 1892, when the Democratic party of the State was divided over the question of the renewal of the charter to the Louisiana lottery, Mr. McEnery accepted the nomination for governor of the pro-lottery party. In the election which followed he was defeated. In 1896, as the result of the combination between the Populists and the Republicans, the vote for governor was in dispute, and the combination forces controlled the legislature and had the power to elect a United States Senator. The Democrats urged McEnery to become a candidate and he accepted the nomination, although it was well known that he was a protectionist and that he differed from his party on many political issues. In spite of this he was elected on the understanding that no effort would be made to change his views. His vote in the Senate was almost consistently in favor of protection when questions on the tariff were involved, and this attitude, especially in the revision of 1909, brought him much criticism. The fact was lost sight of that he was well known as a protectionist, and that his vote was only in accordance with his principles. He was re-elected in 1902 and again in 1908 without opposition. Senator McEnery was not often heard in the Senate, but he was a great power in the politics of Louisiana.

**McGILL UNIVERSITY.** An institution of higher learning at Montreal, Canada, founded in 1821. In 1910-11 the number of students was 2012. The student enrollment was divided as follows: In the college of arts, McGill College, 657; students in applied science, 592; students in medicine, 327; students in graduate school, 26; students in Macdonald College, 329. There were no notable changes in the faculty during the year, nor were any considerable benefactions received. A new building for the medical school was occupied at the beginning of 1910. The principal is W. Peterson.

**McGRATH, HAROLD.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**McGRUDER, BENJAMIN DRAKE.** An American jurist, died April 21, 1910. He was born in 1838 and graduated from Yale College in 1856. He was one of the most influential members of the Illinois bar and was at one time justice of the supreme court of the State. He spent nearly his entire life in Chicago.

**McGUM, FLORENCE.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**MACHINERY.** See articles in mechanical engineering.

**MacKAIL, J. W.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**McKENNA, REGINALD.** See GREAT BRITAIN.

**MacKENZIE, W.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**MacLAGAN, WILLIAM DALRYMPLE.** An English prelate, Archbishop of York 1891 to 1909, died Sept. 19, 1910. He was born at Edinburgh in 1826 and was educated in the schools of Edinburgh and at Peterhouse, Cambridge, where he graduated in 1856. From 1847 to 1852 he served in the Indian army. He retired and was ordained deacon in 1856 and priest in 1857. In 1869 he was appointed rector of Newington, and in 1875 vicar of Kensington. He was appointed bishop of Lichfield in 1878 and in 1891 made Archbishop of York. Among his published writings is a volume of *Pastoral Letters and Sy-*

*nodal Charges* (1891). He was joint editor of the *Church and the Age*, 2 volumes (1870).

**McLAREN, ALEXANDER.** An English minister, died May 5, 1910. He was born in Glasgow, Scotland, in 1826, and was educated at the Glasgow High School and Glasgow University. From 1846 to 1858 he was minister of Portland Chapel, Southampton. In the latter year he became minister of Union Chapel, Manchester, and he continued in this pastorate until the time of his death. Among his publications were several volumes of sermons, *A Spring Holiday in Italy*, *The Life of David as Reflected in his Psalms*, and contributions on Colossians and the Psalms in the *Expositor's Bible*.

**MacLAUGHLIN, J.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**MacLEAN, A. M.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**MacLEOD, FIONA.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**McMASTER, J. B.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**MacNAUGHTON, MYRA (KELLY).** An American author and educator, died March 30, 1910. She was born in Dublin, Ireland, and came with her parents to the United States at an early age. She was educated at the Horace Mann School, New York, and at Teachers College, Columbia University. She graduated from the latter institution with a diploma as teacher of manual training in 1899. She at once began teaching in the public schools of New York City. Her work brought her in touch with the foreign population on the East Side of New York, and from these surroundings she gathered material from which she began to write sketches. These were eagerly accepted by magazine editors as being remarkable for their originality and freshness. In 1905 she married Allan MacNaughton. Among her published books were *Little Citizens* (1904); *Isle of Dreams* (1907); *Wards of Liberty* (1907); *Golden Season* (1910); *Little Aliens* (1910); *New Faces* (1910).

**McNEIL, Sir JOHN.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**MacQUEEN, P.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**MacVEAGH, FRANKLIN.** See UNITED STATES, *Cabinet*.

**McVICKAR, WILLIAM NEILSON.** An American Protestant Episcopal bishop, died June 28, 1910. He was born in New York City in 1843 and graduated from Columbia College in 1865, and from the General Theological Seminary in 1868. In the same year he was ordained, becoming rector of Holy Trinity Church in Harlem, a position which he filled for seven years. In 1875 he received a call from Holy Trinity Church in Philadelphia, of which parish he was rector for twenty-two years, when, in 1897, he was chosen bishop coadjutor of Rhode Island. Upon the death of Bishop Clark in 1893 he became bishop of that diocese. While serving as rector in Philadelphia and New York he attended several general conventions of his church. He had the degree of Doctor of Divinity from several colleges and universities, and the degree of LL. D. from Brown University.

**MADAGASCAR.** An island (one of the largest in the world) off the southeastern coast

of Africa; a French colony. Capital, Antananarivo (Tananarvie).

**AREA, POPULATION, ETC.** Estimated area, 228,000 sq. miles; population (Jan. 1, 1908), 2,706,661 (French, 7606; other Europeans, 2088). Of the Malagasy tribes, the Hova, the dominant tribe, number 847,480; the Betsileo, 408,024; the Betsimisaraka, 288,159. Antananarivo has 72,000 inhabitants; Fianarantsoa, 27,000; Tamatave, the chief eastern port, 7026; Majunga, the port of the northwest coast, 4600. Primary education and the acquisition of the French tongue are compulsory. Schools (1907): 4 infant (5 teachers, 207 pupils), 22 primary (36 and 761); all for Europeans. For natives: 690 primary (1329 teachers, 56,017 pupils), 14 professional (49 and 412), one administrative (5 and 116), 15 normal (64 and 1008). Christianized natives: 450,000 Protestants, 50,000 Catholics.

**PRODUCTION, COMMERCE, ETC.** The principal industries are cattle-raising and agriculture. Under cultivation by Europeans (1906), 339,279 hectares. In the lowlands, rice, manioc, sugar cane, tobacco, hemp, cotton, vanilla, tea, and coffee are successfully grown; rubber and gum-copal are indigenous, and there is a wealth of timber. Livestock (1906): 2,860,384 cattle, 1950 horses, asses, and mules; 264,083 sheep, 63,367 goats, and 479,116 swine. Gold reefs have been found in different parts of the island, and other minerals abound; 1099 prospecting permits are recorded to end of 1904, held by 317 persons (64 British); in 1907, 343 concessions, covering 210,563 hectares, were worked. Sericulture is encouraged; silk and cotton weaving and the manufacture of raphia fabrics are carried on.

The trade for three years is given below in francs:

	1906	1907	1908
Imports .....	36,527,622	25,323,258	29,963,000
Exports .....	28,188,819	27,270,124	23,354,000

Vessels entered (1908), 7248, of 1,430,763 tons (French, 1,289,016); cleared, 7265, of 1,441,793 tons. The railway from Brickaville on the coast to the capital (170 miles) was completed and open for traffic Oct. 1, 1909. A line from Tamatave runs to Ivondra (7 miles), whence a canal connects with Brickaville. Telegraph lines (1909), 3620 miles; telephone lines, about 130. Roads are almost unknown.

**FINANCE AND GOVERNMENT.** The estimated revenue and expenditure balanced (1908) at 32,091,610 francs; French subvention, entirely for military purposes, 15,584,231 in 1909. Debt, Jan. 1, 1907, 101,390,000 francs. Troops (1908), 3723 Europeans, 8254 natives. The local budget provides for the maintenance of police and militia.

A governor-general (1910, M. Picquié) administers the colony, aided by a consultative council. Nineteen provinces are under civil and five territories under military administration. The colony is not represented in the home government, and there is no elective assembly.

Diégo-Suarez, and the islands of Nossi Bé and Ste. Marie are administered by the governor-general of Madagascar.

**MADEIRA, P. C.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**MADERO, FRANCISCO L.** See MEXICO, *History*.

**MADISON, Rep. EDMOND H.** See UNITED STATES, *Congress*, and KANSAS.

**MAETERLINCK, MAURICE.** See DRAMA, AND LITERATURE, ENGLISH AND AMERICAN, *Poetry and Drama*.

**MAGDEBURG CONGRESS.** See SOCIALISM.

**MAGNESIUM.** See ATOMIC WEIGHTS.

**MAGNETIC RAYS.** See PHYSICS.

**MAGNETIC SURVEYS.** See TERRESTRIAL MAGNETISM.

**MAGNETISM, TERRESTRIAL.** See TERRESTRIAL MAGNETISM.

**MAHLER, GUSTAV.** See MUSIC.

**MAIL SUBSIDIES.** See SHIPPING SUBSIDIES and UNITED STATES, *Post-Office*.

**MAINE.** One of the North Atlantic Division of the United States. It has an area of 33,400 square miles. Its capital is Augusta.

**POPULATION.** The population of the State in 1910 according to the Thirteenth Census was 742,371 as compared with 694,466 in 1900 and 661,086 in 1890. The increase in the decade 1900 to 1910 was 6.9 per cent. The State ranks thirty-fourth among the States in point of population, whereas in 1900 it ranked thirty-first. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909-10 are shown in the following table:

	Acreage.	Prod. bus.	Value
Corn, 1910.....	17,000	782,000	\$ 555,000
1909 .....	17,000	646,000	517,000
Spring wheat, 1910	9,000	267,000	272,000
1909 .....	9,000	210,000	253,000
Oats, 1910.....	131,000	5,554,000	2,666,000
1909 .....	124,000	4,588,000	2,661,000
Barley, 1910.....	8,000	248,000	188,000
1909 .....	8,000	228,000	176,000
Buckwheat, 1910	23,000	748,000	509,000
1909 .....	23,000	644,000	451,000
Potatoes, 1910 ...	127,000	27,940,000a	11,735,000
1909.....	130,000	29,250,000	13,748,000
Hay, 1910.....	1,400,000	1,750,000a	22,400,000
1909.....	1,400,000	1,330,000	19,551,000

a Tons.

**MINERAL PRODUCTION.** The State takes high rank in the value and output of its stone products, especially in granite, although there is also a small production of limestone. In the production of granite the State ranks second, being surpassed only by Vermont. The value of the production in 1908, the latest year for which statistics are available, was \$2,027,508. The State ranks high also in the production of slate. It has long been conspicuous among the States in the production and value of its mineral waters. There were produced in 1908 1,182,322 gallons, valued at \$414,300. The State ranks fifth among the States in the quantity and value of lime burned. Other important mineral products are clay products, feldspar, and small quantities of copper, precious stones and gravel.

**CHARITIES AND CORRECTIONS.** The charitable and correctional institutions of the State include the Maine State Prison at Thomaston, the Maine Insane Hospital, the Eastern Maine Insane Hospital, the Maine Industrial School for Girls at Hallowell, and the State School for Boys at South Portland. In May, 1909, a new State Home for Feeble-minded was opened in Cumberland county. The feeble-minded of the State will be segregated here instead of, as hitherto, being

supported by the State in the localities where they have residence.

#### POLITICS AND GOVERNMENT

There was no meeting of the State legislature in 1910, as the sessions are biennial, and the last was held in 1909. The next session begins January 5, 1911.

**CONVENTIONS AND ELECTIONS.** The State and national elections in Maine are always of national interest, because they are held nearly two months earlier than the November elections, common to most of the States, and are held to be an indication as to the general trend of political conditions. Aside from this, the elections of 1910 were of unusual interest on account of the local issues involving the fact that a United States Senator was to be chosen by the next legislature to succeed Senator Hale, who, on April 19, announced that he would not be a candidate for re-election. Although Maine is not reckoned as one of the insurgent or progressive States, there has long been opposition to Senator Hale on account of his conservative attitude on many public questions, and it was seriously debated whether he would have been elected for another term, even if he had not withdrawn and the State had elected a Republican legislature. Several strong candidates were in the field against him, and it was charged by his political opponents that he saw the hopelessness of accepting another term in the Senate and accordingly withdrew his name.

The local situation was complicated with opposition to the Republican machine of the State and division in the Republican party as to its attitude in regard to the Prohibition law.

The Republican State Convention met on June 29 at Augusta. Governor Fernald was renominated by acclamation. The platform adopted by the convention endorsed the administration of President Taft as wise, progressive and safe, and commended it for continuing the energetic, efficient, wise and necessary policies of President Roosevelt's administration. A plank was included praising the Payne-Aldrich tariff law, although in moderate terms, and favoring the ratification by the United States legislature of an amendment to the Federal Constitution relative to the income tax. The platform declared emphatically in favor of Prohibition and for a vigorous and honest enforcement of the prohibitory laws. It urged also the enactment of such direct primary and other laws as may properly regulate the conduct of all caucuses to secure the honest and free expression of the popular will therein.

The Democratic State convention met on June 15 and nominated Frederick W. Plaisted governor, and adopted a platform which included planks favoring the election of United States Senators by the people, the enactment of a corrupt practices law, the repeal of the so-called Sturgis enforcement law, and the resubmission of the prohibitory liquor law to the people. Mr. Plaisted is the son of Harris M. Plaisted, who was the last Democratic governor elected in the State thirty years ago. The campaign which followed the conventions was a spirited one. Many national figures in the Republican and Democratic parties made speeches in the State. The result of the election on September 12 was

a surprise even to those who had forecasted Democratic success. Mr. Plaisted was elected governor by a majority of about 8000. The Democrats also carried the legislature and therefore will elect a United States Senator to succeed Senator Hale. Two of the Republican candidates for Congress were defeated and two were elected. The defeated candidates were Congressman John P. Swasey of Canton, who was defeated for re-election by Daniel J. McGillicuddy of Lewiston, and Edwin C. Burleigh of Augusta, who was defeated for re-election by Samuel W. Gould of Skowhegan. The successful Republican candidates were Frank E. Guernsey of Dover and Asher C. Hinds of Portland, who for many years has been paliammentarian of the House of Representatives and was probably the most eminent paliammentarian in the country. Mr. Hinds was elected from the district which was formerly represented by Thomas B. Reed.

The election also seated a legislature which will abolish the so-called Sturgis law for the better enforcement of the laws against the illegal sale of intoxicating liquors, and which will probably resubmit to the people the constitutional amendment relative to the prohibitory law.

**STATE OFFICERS.** Governor, Frederick W. Plaisted; Secretary of State, A. I. Brown; Treasurer, P. P. Gilmore; Adjutant-General, Elliot C. Dill; Auditor, Lamont A. Stevens; Attorney-General, Warren C. Philbrook; Superintendent of Education, Payson Smith; Insurance Commissioner, Beecher Putnam; Commissioner of Agriculture, A. W. Gilman; Commissioner of Public Lands, E. E. Ring—all Republicans, except Plaisted and Stevens, Democrats.

**JUDICIARY.** Supreme Judicial Court, Chief Justice, L. A. Emery; Associate Justices, L. C. Cornish, Albert M. Spear, W. P. Whitehouse, G. E. Bird, Albert R. Savage, A. W. King, and Henry C. Peabody—all Republicans except Bird; Clerks, C. F. Sweet, C. W. Jones, L. Barton—all Republicans except Barton.

**STATE LEGISLATURE, 1911.** Republicans, Senate, 9; House, 65; joint ballot, 74; Democrats, Senate, 22; House, 86; joint ballot, 108; Democratic majority, Senate, 13; House, 21; joint ballot, 34.

**MAINE, RAISING OF THE.** For uncovering the wreck of the former U. S. Battleship *Maine* in Havana harbor, and removing any remaining bodies of the crew and disposing of the ship, \$300,000 was appropriated by Congress. To do this work the Army engineers to whom it was entrusted developed a plan to provide a wall of water-tight cofferdams entirely around the wreck, so that the water could be pumped out from the enclosed space and the hull left open to inspection after the mud had been sufficiently removed. It was proposed to employ interlocking sheet steel piling formed into a cylindrical caisson which could be driven through the mud until the hard clay bottom about 70 feet below mean water level was reached. The cofferdam wall surrounding the ship will be filled with clay in order to afford sufficient stability and prevent the cofferdams being overturned after the water has been pumped out from the enclosed space. It was proposed to use centrifugal pumps to remove the water, and also a large portion of the mud. It was estimated by Col. William M. Black, Corps of Engineers, U. S. A., that the unwater-

ing and exposure of the hull would cost \$225,000. Operations were begun toward the end of the year 1910, and were expected to occupy three or four months.

**MAINE, UNIVERSITY OF.** An institution of higher learning at Orono, Maine, founded in 1865. It is under the control of the State. The enrollment in all departments in 1910-11 was 339, distributed as follows: Graduate students, 13; College of Arts and Sciences, including summer term, 182; College of Agriculture, 135; College of Technology, 329; College of Pharmacy, 18; College of Law, 102; Short Winter Courses, 60. The faculty numbered 91. The President, George Emory Fellows, resigned in July, 1910, after having served from 1902. He ceased active connection with the University in September, 1910. Dr. James N. Hart served as acting-president until December 1, when Robert Judson Aley, Ph. D., assumed his duties as President of the University. Among the new appointments to the faculty in the year 1910-11 were the following: Leon Stephen Merrill, M. D., director of extension work in agriculture; John Manvers Briscoe, professor of forestry; Edgar Raine Wingard, director of physical culture and athletics. Gordon Edwin Tower, professor of forestry, resigned at the end of the college year 1909-10. During 1910 a new dormitory was erected on the campus of the university. The income from all sources for the fiscal year ending June 30, 1910, was \$237,109.

**MALARIA.** Dr. L. O. Howard, of the Bureau of Entomology, reported to the Department of Agriculture, on his return from the Italian Campagna, that as the result of the war on mosquitoes in certain parts of Italy, a healthy, cheerful looking race, and fat, rosy children have replaced the miserable peasants, with yellow skins and bodies bent with disease and suffering. The Campagna, which in former times was almost uninhabitable on account of the mosquitoes and malaria, has been drained by the government and turned into farming land, and, it is believed, will eventually support a large number of people. The government also furnishes quinine at a cheap rate to the malarial population of the country, and gives the drug free to those unable to buy it.

A new journal, devoted to work and news bearing on malaria, has been founded by the Italian Antimalaria League. It is called *Malaria e Malattie Affini*, and is published in Rome, via Farini, 62.

**MALAY STATES.** See FEDERATED MALAY STATES; KELANTAN; KEDAH; PERLIS; JOHORE.

**MALINOFF, M.** See BULGARIA.

**MALTA.** An island in the Mediterranean; a British crown colony. Area, 91.6 square miles. The islands of Gozo (24½ square miles) and Comino, with several islets, belong to the colony; total area of colony, 117 square miles. Total population (1909), 215,879; population of Valletta (the capital), 22,768; of Cospicua, 12,148; of Senglea, 8093. There were (1909) 190 primary schools, with 25,782 pupils; 2 secondary, with 307; one lyceum, with 594 students, and one university with 165. Area cultivated (1909), 41,037 acres; number of holdings, 11,000. Area under wheat, barley, and mischiato, 13,465 acres; potatoes, 3409; cummin seed, 1825; cotton, 793; onions, 653. Yield: wheat, 18,518 quarters of 8 bushels each; barley, 8547; mischiato, 4694; potatoes, 199,460 cwts.; cummin

seed, 4216; cotton, 181,191 lbs.; onions, 3820 tons; citrus fruits, 264,000 dozens. Livestock (1909): horses, asses and mules, 9762; cattle, 6570; sheep, 17,485; goats, 18,415; swine, 4184. Imports and exports for year ending March 31, 1910, £1,172,180 and £113,127 respectively. There is a large transit trade. Tonnage of vessels entered and cleared, 7,432,691. Length of railways, 7½ miles; telegraphs, none; telephone, 742 public, 18½ military (open to the public). Revenue (1909-10), £436,200 (customs dues, £243,354); expenditure, £458,013; public debt, £79,115. Military forces, about 8000 officers and men. Malta is the headquarters and the chief coaling station of the Mediterranean fleet, and is strongly fortified. Governor and commander-in-chief (1910), General Sir H. L. M. Rundle.

**MALTA FEVER.** See TROPICAL DISEASES.

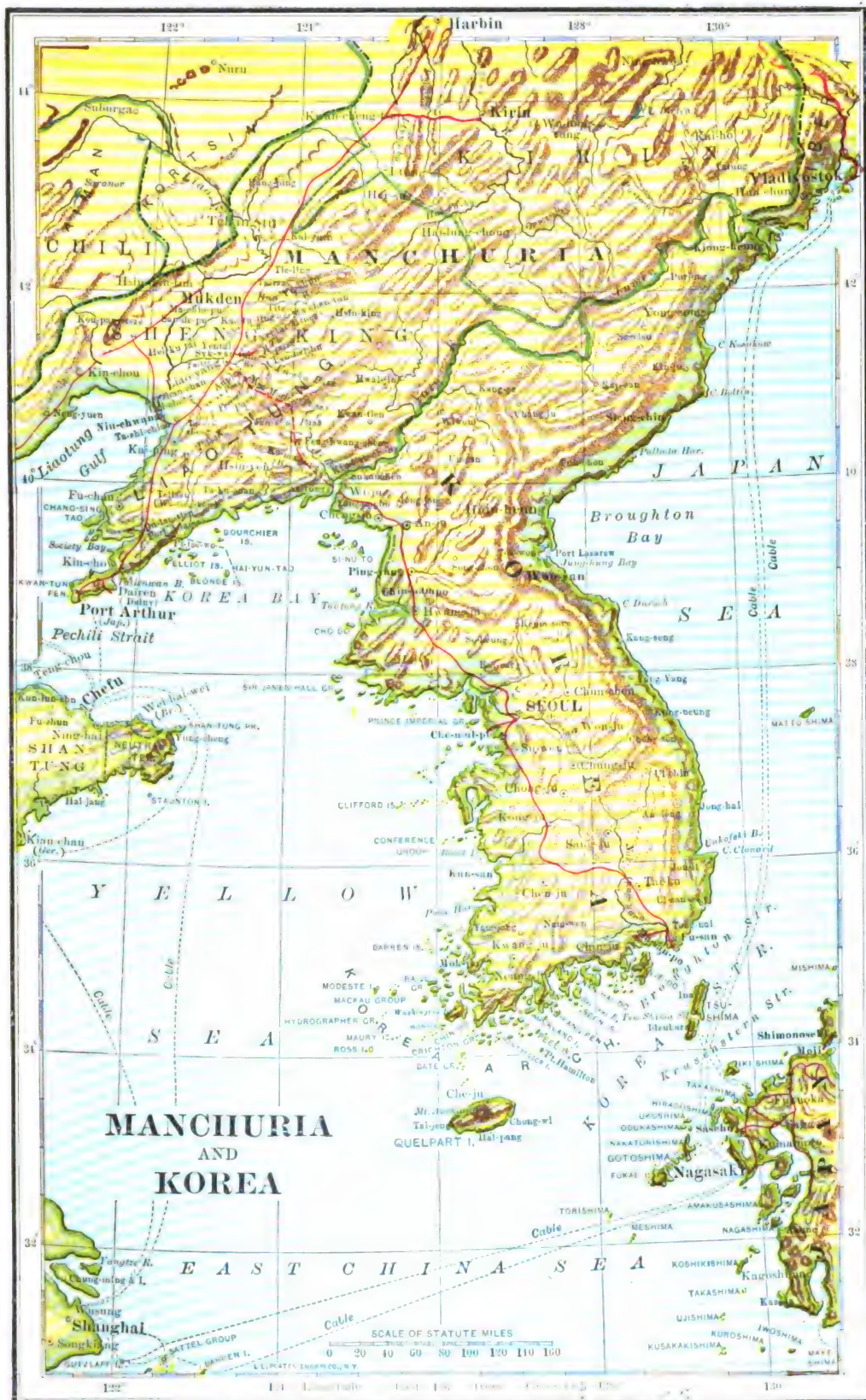
**MAMMALS, FOSSIL.** See GEOLOGY.

**MANCHURIA.** A Chinese dependency, lying east of Mongolia and Chili and between Korea and the Amur River. Capital, Mukden.

Estimated area, 363,610 square miles. Most varying estimates are given for the number of inhabitants, ranging from less than 6,000,000 to 22,000,000. One estimate by provinces is: Feng-tien, or Shenking (56,000 square miles), 10,312,000; Kirin (105,000 square miles), 6,000,000; Helungkiang, or the Amur Province (203,000 square miles), 1,500,000. An official Chinese estimate is 16,000,000. The results of a later official investigation, made public about January 1, 1910, show 803,390 houses in Feng-tien and 736,480 in Kirin, indicating populations of about 4,400,000 and 4,050,000 respectively. On this basis the total population of Manchuria appears to be within 10,000,000. In June, 1910, the number of Japanese settlers, exclusive of about 30,000 in Kwantung (q. v.), was reported at 24,996; also in 1910 a considerable immigration from China proper was reported, occasioned chiefly by a scarcity of agricultural labor. At the end of the year there was an appalling outbreak of bubonic plague extending from Kharbin to Mukden. The principal cities, with approximate population, are: Mukden, over 158,000; Changchun, 80,000; Ying-tse (sometimes called Newchwang, at the mouth of the Liao River), 60,000; Newchwang (30 miles up the Liao), 50,000; Liaoyang, 40,000; Tsitstikhar, 30,000. Northern Manchuria is in the Russian sphere of influence, and Southern in the Japanese.

Reliable figures for production, etc., are not available, but an official Chinese report of 1908 stated that in Feng-tien, the most southerly and the best developed province, there were 4,333,333 acres under cultivation. The principal crops are soy beans, kafir corn, and millet, and others of some importance are wheat, barley, corn, and tobacco. In the last few years, the production of soy beans and bean-cake has increased immensely. A very large part of the Chinese bean export is from Manchuria, whose commerce is included with that of China; note the figures showing the development of the bean export in the article CHINESE EMPIRE, paragraph Commerce. Various minerals occur in Manchuria, particularly coal and iron, which are worked to some extent.

The railways are as follows: (1) Imperial Railways of North China, from Shan-hai-kwan, on the Chili frontier, north to Mukden, with branch to Ying-tse, about 300 miles. (2) Chinese



REVISED, 1919

Copyright, 1906, by David McKel & Co.

1901

Eastern Railway, from Changchun (Kuancheng-tzu), north to Kharbin, with branches (the Siberian railway) east and west to the Russian frontier, 1080 miles, under Russian control. (3) The Taitsikhar light railway connecting Tsitsikhar with the Chinese Eastern, 17 miles. (4) South Manchurian Railway, under Japanese control, Changchun south through Mukden to Dairen (in Kwantung), 439 miles, with branches: (a) Mukden to Antung (on the coast and the Korea frontier), about 190 miles; (b) Choushuitzu to Port Arthur (in Kwantung), 31 miles; (c) Tashihkiao to Ying-tse, 17 miles; (d) Yen Tai to Taikang, 10 miles; (e) Suchiatun to Fushun, 34 miles. Total in Manchuria, over 21,000 miles. A branch line from the South Manchurian at Changchun to Kirin, 75 miles, under construction in 1910, was expected to be opened to traffic in 1911. In 1910 the Japanese were standardizing the gauge and, by pursuing in part a more direct but more difficult route, shortening the mileage of the Mukden-Antung line, which, it was expected, would be completed in the summer of 1911.

As announced in November, 1910, revenue and expenditure by provinces is as follows: Fengtien, 16,180,000 and 15,520,000 taels respectively; Kirin, 8,480,000 and 9,540,000; Helungkiang, 540,000 and 551,000. Manchuria is administered by a viceroy (Hsi Liang in 1910) appointed by the Chinese government.

**MANCHURIAN RAILWAYS.** See CHINA; JAPAN, MANCHURIA AND UNITED STATES, *Foreign Relations*

**MANGANESE.** See ATOMIC WEIGHTS.

**MAN, ISLE OF.** See GREAT BRITAIN.

**MANITOBA.** A province of Canada (since July 15, 1870). Capital, Winnipeg. Area, 73,732 square miles. Population (estimated 1900), 496,111. For details, see CANADA. The government consists of the Lieutenant-Governor, appointed, by the Governor-General of Canada, the Executive Council (responsible ministry), and the unicameral Legislative Assembly (41 members elected for four years). In 1910, Lieutenant-Governor, Sir Daniel Hunter McMillan (appointed May, 1906); Premier, Rodman P. Roblin. The elections were held in midsummer, resulting in a complete victory for the Roblin Ministry, which was returned with greatly increased majorities.

**MANN-ELKINS RAILROAD ACT.** See RAILWAYS.

**MANTEGAZZA, PAOLO.** An Italian physiologist and anthropologist, died August 28, 1910. He was born at Monza, Italy, in 1831, and studied medicine in the universities of Pisa and Milan and received his doctor's degree at Pavia in 1854. Following this he travelled extensively in Europe, India and South America. He practised for some time in Paraguay and in the Argentine Republic. In 1858 he returned to Milan. He was appointed physician at the hospital in that city in the following year and became in 1860 professor in pathology at Pavia. He was made professor of anthropology at the Instituto di Studi Superiori in Florence and there he founded the Museum of Anthropology and Ethnology, the first in Italy, as well as the Italian Anthropological Society, and a review called *Archivio per l'Antropologia e l'Etnologia*. From 1865 to 1876 he was deputy from Monza in the Italian Parliament and in the latter year he was appointed to the Senate. Among his published works are the following: *Elementi d'igiene*

(1875); *Igiene dell'amore* (1877); *Fisiologia del dolore* (1880); *Fisiologia del piacere* (1881); *Fisionomia e mimica* (1883); *Gli amori degli uomini. Saggio di una etnologia dell'amore* (1886); *Le estasi umane* (1887); *Fisiologia della donna* (1893); *Fisiologia dell'amore* (1896); *L'anno 3000* (1897); and *L'amore* (1898). He also published travel sketches and political treatises; *Rio della Plata e Teneriffe* (1877); *Viaggio in Lapponia* (1884); *India* (1884); *Studi sulla etnologia dell'India* (1886); and *Ricordi d'un fantaccino al parlamento italiano* (1896).

**MANUAL TRAINING.** See EDUCATION IN THE UNITED STATES.

**MANUFACTURES.** See paragraphs on the subject in articles on countries and under separate heads, as SILK, COTTON, etc.

**MANZANILLO HARBOR.** See DOCKS AND HARBORS.

**MAPS.** See EXPLORATIONS.

**MARCONI SYSTEM.** See WIRELESS TELEGRAPHY.

**MARGUERITTE, PAUL.** See FRENCH LITERATURE.

**MARIANNE ISLANDS.** See LADRONE ISLANDS.

**MARINE ARCHITECTURE.** See SHIPBUILDING.

**MARINE ENGINEERING.** See SHIPBUILDING AND NAVAL PROGRESS.

**MARINE LABORATORIES.** See BIOLOGICAL STATIONS.

**MARKHAM, Sir C.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**MARLOWE, JULIA.** See DRAMA.

**MARRIOTT, J. A. R.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**MARS.** See ASTRONOMY.

**MARSHALL, FRANK J.** See CHESS.

**MARSHALL, H. R.** See LITERATURE, ENGLISH AND AMERICAN, *Philosophy and Religion*.

**MARSHALL, JAMES WILLIAM.** An American public official, died February 4, 1910. He early became interested in politics and acted as Consul at Leeds, England and as First Assistant Postmaster-General. He was Postmaster-General in President Grant's cabinet for one month in 1874.

**MARSHALL, ROBERT.** An English soldier and playwright, died July 1, 1910. He was born at Edinburgh in 1863 and was educated at St. Andrews College and Edinburgh University. In 1886 he was commissioned a lieutenant of the West Riding Regiment and was made a captain in 1895. He was district-adjutant in Cape Town in 1893-4 and aide to Governor Sir Hely-Hutchinson from 1894 to 1898, when he retired from the army. He wrote a large number of successful plays, the best known of which are perhaps, *A Royal Family*, *The Second in Command*, and *The Duke of Killiecrankie*. His first work as a playwright was a one act sketch, *The Shades of Night*, produced in 1896 by Forbes-Robertson. Among other plays which came from his pen were the following: *His Excellency the Governor* and *The Broad Road* in 1898, *The Noble Lord* (1900), *There's Many a Slip*, *The Unforeseen*, and *The Haunted Major* (1902), *Everybody's Secret* (1904), and *The Lady of Leeds* and *The Alabaster Staircase* (1906).

**MARSHALL ISLANDS.** Two chains of lagoon islands in the Pacific, belonging to Germany, and administered under the German New Guinea government. European population

(1907), 162; other, 15,000. Jaluit is the chief island and the residence of the commissioner. Imports (1908), 1,367,066 marks; exports, 4,013,597 (phosphate, 3,301,140).

**MARTIN, T. C.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**MARTIN, W.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**MARTINIQUE.** An island of the Lesser Antilles; a French colony. Area, 381 square miles. Population (1906), 182,024. Capital, Fort-de-France, with 27,015 inhabitants. The primary schools had 13,360 pupils in 1908, 13,797 in 1909. There are secondary and special schools at Fort-de-France. Area planted (1909) to sugar-cane, 19,000 hectares; cacao, 1560; vanilla, 30; coffee, 20. Live animals, 3317. Persons engaged in agriculture, 43,350. Tobacco is cultivated under special regulations. Sugar works, 15; distilleries (rum), 55. There are no mines, and no railways. Total imports (1908), 15,363,285 francs (French, 8,122,386; other, 7,240,899); total exports, 20,785,091 (home produce, 18,582,902; re-exports, 2,202,189). The details are given below in francs:

	Animal prods.	Veg. prods.	Min. prods.	Manu- factures
Imps. Fr. . . . .	1,212,845	2,237,693	463,952	4,207,896
" other . . . . .	575,237	2,664,104	1,376,118	2,625,440
Total . . . . .	1,788,082	4,901,797	1,840,070	6,833,336
Exps. spec. . . . .	95,358	18,470,679	7,953	8,912
Re-exps. . . . .	56,221	278,371	1,375,136	492,461
Total . . . . .	151,579	18,749,050	1,383,089	501,373

There is external cable and internal telephone communication. Post-offices, 53. The local budget balanced (1910) at 9,127,715 francs; French expenditure (budget of 1910), 1,164,493; debt (January 1, 1910), 2,660,000. Vessels entered (1909), 342, of 335,230 tons (in 1908, 368, of 340,589). Military (1910), 17 officers, 409 men. Governor (1910), vacant.

**MARYLAND.** One of the Middle Atlantic Division of the United States. It has an area of 13,327 square miles, of which 3386 square miles are water. Its capital is Annapolis.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 1,295,346 as compared with 1,188,044 in 1900 and 1,042,390 in 1890. The increase in the decade from 1900 to 1910 was 9 per cent. The State ranks twenty-seventh in point of population whereas in 1900 it ranked twenty-sixth. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** The chief mineral products in the State are coal and pig iron. The coal production in 1909 was 4,022,181 tons, which was a decrease from the production of 1908, which was 4,377,093 tons. The value of the production of 1909 was \$4,470,656 as compared with a value of the product of 1908 of \$5,116,753. The decreased production of coal in the last two years appears to have been due to the approaching exhaustion of the "Maryland big vein," the portion of the Pittsburg bed that has furnished the larger part of the Maryland output. Increased competition with West Virginia coal has also caused a decline in price of the coal mined in Maryland. During the year there were 17 fatal accidents in the coal mines of the State. The clay products are of considerable value, as are also the mineral

water, slate and stone products. A small quantity of iron ore is also produced.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909-10 are shown in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910 . . . . .	710,000	23,785,000	\$13,795,000
" 1909 . . . . .	700,000	21,980,000	14,237,000
Winter wheat, 1910 . . . . .	794,000	13,816,000	12,711,000
" 1909 . . . . .	770,000	11,168,000	12,282,000
Oats, 1910 . . . . .	27,000	810,000	373,000
" 1909 . . . . .	28,000	711,000	348,000
Barley, 1910 . . . . .	1,000	31,000	19,000
" 1909 . . . . .	1,000	32,000	20,000
Rye, 1910 . . . . .	21,000	338,000	254,000
" 1909 . . . . .	20,000	282,000	220,000
Buckwheat, 1910 . . . . .	9,000	166,000	110,000
" 1909 . . . . .	9,000	149,000	110,000
Potatoes, 1910 . . . . .	36,000	3,420,000	1,847,000
" 1909 . . . . .	35,000	2,800,000	1,848,000
Hay, 1910 . . . . .	291,000	393,000a	6,052,000
" 1909 . . . . .	297,000	346,000	5,126,000
Tobacco, 1910 . . . . .	28,500	19,665,000b	1,514,000
" 1909 . . . . .	25,000	17,750,000	1,473,250

a Tons. b Pounds.

**EDUCATION.** The total school population of the State, ages 5 to 20 years was, at the end of the fiscal year 1910, 350,319. The total number of schools in the State on the same date was 2474. The average enrollment was 189,914 and the average attendance was 145,762. There were in the State 522 schools for colored children with an average enrollment of 35,651 and an average daily attendance of 24,050. The total disbursements for educational purposes, including the balance on hand on July 1, 1910, was \$4,060,341. One of the chief developments in the educational system of the State during 1910 was the distinct improvement in high schools, an extension of the plan to bring closer supervision in the counties through the appointment of grade supervisors, a more extended introduction of home economics and industrial arts and an effort on the part of many county school officials to bring the school and the home into more sympathetic relations and helpful coöperation. The General Assembly of 1910 gave substantial recognition to secondary schools by designating all accredited high schools as First or Second Group, according to the number of years of instruction, the pupils enrolled and assistants employed. A Commission on the proper education of colored children has carried on an investigation in the State since 1908 and this Commission made its report to the Assembly of 1910. Many important recommendations relating to the subject were submitted.

**FINANCE.** The report of the treasurer for the fiscal year ending September 30, 1910, showed a balance in the treasury September 30, 1909, of \$1,328,069. The receipts during the year were \$5,875,598 and the disbursements were \$6,328,557, leaving a cash balance at the end of the fiscal year of \$875,111. The funded debt of the State amounted on September 30, 1910, to \$7,529,926. This was increased during the year to the amount of \$811,000.

**CHARITIES AND CORRECTIONS.** The State institutions which are supported wholly or in part from State funds, with the amounts contributed for their support in 1910, are as follows: Baltimore Eye, Ear and Throat Charity Hospital, \$8000; Baltimore Orphan Asylum, \$2000; Baltimore State Hospital, \$10,000; Baltimore Aged Women and Men's Home, \$3000; Confederate Women's Home, \$1000; Deaf and Dumb Asylum, \$3000; Deaf, Dumb and Blind Asylum, Colored,

\$15,000; Home for Incurables, \$2500; Hospital for Women of Maryland, \$4000; Hospital for Crippled and Deformed Children, \$5000; Industrial School for Colored Girls, \$1250; Maryland School for Boys, \$26,250; Maryland Hospital for the Insane, \$38,225; Maryland General Hospital, \$8000; Maryland Asylum and Training School for Feeble-minded, \$62,000; Maryland Home for Friendless Children, \$350; Maryland Tuberculosis Sanatorium, \$85,000; St. Vincent's Infant Asylum, \$11,250; St. Mary's Orphan Asylum, \$4500; Springfield State Hospital, \$85,000; United Charities Hospital Association of Dorchester county, \$9250; Union Protestant Infirmary, \$10,000.

#### POLITICS AND GOVERNMENT

The State legislature met in January, 1910, and the chief measures passed by the session will be found noted in the section *Legislature* below. There was no election for governor, as the term of Governor Crothers does not expire until January, 1912. On January 18 Isidor Rayner was re-elected to the United States Senate by the legislature.

The chief political interest of the year centred in the passage through the legislature of a bill to disfranchise the negro voters at State and municipal elections. There were in all four bills passed dealing with this subject. The first repealed the existing registration laws, the second enacted a new registration measure providing that none but white men and those colored citizens who own \$500 worth of property should be registered in the future as voters, and the third bill proposed a constitutional amendment designed to restrict registration for all time to the white people of the State and such negroes as own property, in that it prohibits any future legislature from extending the registration privilege to negroes, except those owning \$500 worth of property. The fourth bill extended the terms of the mayor and other municipal officers of Baltimore so that their successors would be chosen in the November State elections, the spring elections being abolished. These disfranchisement measures were the most sweeping yet passed in any State legislature. They were based upon the assumption that, as Maryland had refused to ratify the Fifteenth Amendment, it was not bound by it, or rather that the amendment, as far as Maryland is concerned, is void. This theory was based by the lawyer who drafted it upon the assumption that certain rights cannot be taken from any State by the other States without the consent of the State so affected, just as no State can be deprived by amending the constitution of its equal representation in the Federal Senate. The Maryland Constitution gives the right of suffrage only to white voters, and the disfranchisement bill was passed on the following grounds: Inasmuch as Maryland refused to ratify the Fifteenth Amendment, a law should be enacted which should deny non-tax-paying negroes the right to be registered as voters in State elections. The Maryland constitution gives the right of suffrage only to white voters and after the law had come into operation excluding negroes from registration a constitutional amendment prohibiting the legislature from enacting any law for the registration of negroes except such as owned \$500 worth of property, was proposed by the legislature. This proposed amendment will be submitted to the people at the general election in 1911, but its defeat is certain. It was proposed to secure the

adoption of the amendment at the election by refusing registration to negroes under the other law, but the governor vetoed this registration law. It was intended that this measure should be applied only in State elections, while to avoid Federal interference separate books for registration should be kept for election to Congress and for President at which negroes could vote. This registration bill was vetoed by Governor Crothers, so that the negro voters in the State will have an opportunity to vote on the proposed amendment. The constitutional amendment providing for the disfranchisement of the negro voters in the State will be voted on in the fall of 1911. The bill was strongly opposed by the Republicans in the legislature, but they were obliged to abandon efforts to delay its passage in order to save their own local measures, as the Democrats threatened to kill every bill offered by Republicans if they persisted in filibustering. Governor Crothers would have vetoed the bill proposing the amendment, but the Court of Appeals of the State has decided that he had no power to do so.

On March 2, by a vote of 50 to 48 the House of Delegates killed the State-wide local option bill and this put an end to temperance legislation for the session. The bill was prepared by the Anti-Saloon League.

The action of the governor, acting with the advice of the chief promoter of the disfranchising legislation, in vetoing the registration and city election bills, is regarded as disposing of disfranchising plans for some time to come. The most important legislation enacted at the session of 1910 was the creation of a Public Service Commission for the whole State with large powers, including that to fix rates.

In December an ordinance was passed by the mayor and council of Baltimore providing for segregation of negroes in that city. The measure provided that no white family shall move into a block where the majority of the residents are negroes, and no negro occupy a residence in a block that is inhabited principally by white people. The object of the measure was to segregate the negroes and prevent them from residing in white neighborhoods. Some question arose as to the constitutionality of the measure and it was decided by the city solicitor that it was constitutional. The ordinance therefore went into effect on December 19. Suits will probably be brought to test the law, which may be carried to the highest courts.

For the first time in the history of the State the Republican and Democratic candidates for Congress were chosen in districts where there were contests by the direct primary system. At the elections held on November 8, the Democrats succeeding in electing all candidates for the House of Representatives except one. Of these, two were re-elected.

LEGISLATION. Among the important measures enacted at the legislative session of 1910 were the following: The laws in regard to driving automobiles in the State were revised and the speed limits were fixed at 12 miles an hour in business sections, 18 miles an hour in the suburbs and 25 miles an hour in the country. Laws relating to banks, savings institutions and the duties of the bank commissioner were thoroughly revised. The child labor laws were amended so that the employment of children under 14 years of age between the hours of eight at night and eight in the morning for any pur-

pose is forbidden. An act was passed providing for the protection of children under three years of age and punishing those who have the care or custody of such infants and desert them. A State conservation commission was created, made up of three unpaid members, who are to study the problem of conservation, cooperate with the conservation boards of other States and with the Federal government, and prepare publications on the subject. In addition to the constitutional amendment providing for the disfranchisement of negro voters mentioned above, an amendment was submitted providing for the apportionment of legislative districts and for the government of Baltimore. The unlawful use of trade names or imitations thereof and of stencils for boxes containing garden produce was made criminal. Among the educational measures enacted was one which added Esperanto to the subjects which may be taught in the public schools. The matter is left to the local boards of education. An act was passed forbidding the misbranding and adulteration of foods. The administration is by a commissioner appointed by the State Board of Health. The State Board of Health was reorganized into a department of health with bureaus of communicable diseases, bacteriology, chemistry, sanitary engineering and vital statistics. October 12 was made a legal holiday, to be known as Columbus Day. A law was enacted requiring the public printer to affix the union label to all State printing. An elaborate public utilities measure was passed. Members of the commission are appointed for six years and may be removed for cause. Its jurisdiction embraces railroads, street railroads and other common carriers, gas, water, electric, telephone, telegraph, and all companies engaged in the transportation of property or freight. The chief powers of the commission are: to require safe, adequate, just and reasonable service in accordance with the careful definitions of the act; to order railroads to furnish side-track and switch connections, and additional cars or trains when needed; to prescribe systems of accounting; on complaint or on its own motion and after a hearing to disallow railroad rates and fix a maximum; to order substitution of proper transportation service or regulations for unreasonable or inadequate conditions; to approve local public utility rates as a condition of their validity; to prohibit unjust discriminations, permitting, however, mileage, excursion and commutation tickets, and passes to specified persons; to prohibit false billing and discrimination between carriers. The board has power also to supervise mergers, the issue of securities and the transfer of existing franchises. A long and short haul clause permits no reduced long haul rates except on application in each case specially to the commission. An important primary election law was passed providing for primary elections by direct vote of the people. This statute is applicable to the entire State and to all offices. In some of the smaller counties the primary election chooses representatives to the county convention, and throughout the State it chooses delegates to the State convention for the nomination of governor and other central State officers. Otherwise, the voters at the primary select directly the candidates of their choice. Important legislation was enacted relating to "white slaves" as a result of the agitation carried on during 1909-10.

STATE OFFICERS: Governor, Austin L. Croth-

ers; Secretary of State, N. Winslow Williams; Treasurer, Murray Vandiver; Comptroller, Wm. B. Clagett; Adjutant-General, Henry W. Warfield; Attorney-General, Isaac L. Straus—all Democrats.

JUDICIARY: Court of Appeals: Chief Judge, Andrew H. Boyd; Associate Judges, N. Chas. Burke, William H. Thomas, John R. Pattison, Hammond Urner, John P. Briscoe, S. D. Schmucker, and James A. Pearce; Clerk, Caleb C. Magruder—all Democrats except Schmucker and Urner, Republicans.

STATE LEGISLATURE, 1911. Democrats, Senate, 17; House, 71; joint ballot, 88; Republicans, Senate, 9; House, 30; joint ballot, 39; Independent Democrat, Senate, 1; joint ballot 1; Democratic majority, Senate, 7; House, 41; joint ballot, 48.

MASEFIELD, JOHN. See LITERATURE, ENGLISH AND AMERICAN, *Poetry and Drama*.

MASSACHUSETTS. One of the North Atlantic Division of the United States. It has an area of 8266 square miles. Its capital is Boston.

POPULATION. The population of the State in 1910, according to the Thirteenth Census, was 3,366,416, as compared with 2,805,346 in 1900 and 2,238,947 in 1890. The increase in the decade 1900 to 1910 was 20 per cent. The State ranks sixth among the States in point of population, whereas in 1900 it ranked seventh. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

MINERAL PRODUCTION. Massachusetts is one of the most important States in the production of granite. In this it is surpassed only by Maine and Vermont. The output for 1908, the latest year for which statistics are available, was valued at \$2,027,463. Other valuable stones produced are sandstone, trap rock and marble. The total value of the stone products in 1908 was \$2,255,195. There are also valuable clay products and a large quantity of lime is produced. The State is notable for its production of mineral water. Among other mineral products, which are produced in small quantities, are copper, glasse-sand, pig iron, lime, asbestos, talc and soapstone.

AGRICULTURE. The acreage, production and value of the principal crops in 1909-10 are shown in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	50,000	2,275,000	\$ 1,592,000
1909.....	47,000	1,786,000	1,447,000
Oats, 1910.....	7,000	248,000	124,000
1909.....	7,000	217,000	126,000
Rye, 1910.....	5,000	85,000	80,000
1909.....	4,000	65,000	68,000
Buckwheat, 1900.....	3,000	66,000	56,000
1909.....	3,000	58,000	44,000
Potatoes, 1910.....	35,000	4,375,000	3,062,000
1909.....	34,000	4,250,000	3,358,000
Hay, 1910.....	590,000	755,000a	14,420,000
1909.....	585,000	673,000	12,720,000
Tobacco, 1910.....	4,400	7,612,000b	1,141,800
1909.....	4,400	7,040,000	985,000

a Tons. b Pounds.

EDUCATION. The total school population between the ages of 5 and 15 years on September 1, 1909, was 558,509. The number of illiterate minors over 14 years of age at the same date was 6612. The total enrollment in the public

school of pupils between 7 and 14 was 337,599 and the total enrollment of pupils of all ages was 535,869. The teachers in the schools numbered 15,321, of whom 13,946 were women and 1375 were men. The average monthly salary of male teachers was \$152.96 and of female teachers was \$61.82. There were 270 public high schools in the State, with 59,068 pupils and 2305 teachers. The total expenditure for the support of the public schools was \$16,012,722. The total expenditure for buildings was \$4,122,022.

**FINANCE.** The report of the State treasurer showed a balance on December 1, 1909, of \$5,178,107. The receipts during the year amounted to \$46,288,581 and the disbursements to \$44,777,381, leaving a balance on December 1, 1910, of \$6,689,307. The gross contingent funded debt of the State on December 1, 1910, was \$73,644,245, and the gross direct funded debt was \$40,791,916.

#### POLITICS AND GOVERNMENT

The State legislature met in annual session in 1910 and passed several important measures. These will be found noted in the paragraphs on legislation below. In addition to these measures a so-called district nominations bill was passed. This provides that the question of direct nominations may be submitted to the voters in senatorial and representative districts upon petition of 10 per cent. of the voters of the district. The measure makes no provision for the direct nomination of State officials, or members of political committees. On May 10 the House of Representatives passed a resolution in favor of the election of United States Senators by direct vote of the people. An attempt was made to have this vote reconsidered, but this failed by a vote of 89 to 115. On May 12 the Senate defeated the measure by 11 to 22. In this vote the eight Democratic members were joined by three Republicans. Three other Republican Senators were absent or did not vote.

On May 4, the House of Representatives, by a vote of 126 to 102 refused to pass the income tax resolution. About three-fourths of the Democratic and one-fourth of the Republican members of the House voted for it.

**CONVENTIONS AND ELECTIONS.** The political history of Massachusetts in 1910 was one of the most spirited in many years. It began with the election on January 11 for mayor and other officials of the city of Boston under a new charter. The election followed one of the most interesting campaigns in the history of the city. The candidates were John F. Fitzgerald, a former mayor, James J. Storrow, George A. Hibbard, then mayor of the city, and Nathaniel H. Taylor. The candidates went upon the ballot without political designation. Storrow made his campaign on the alleged unfitness of Fitzgerald to act as mayor as indicated by his performances during his former terms. Mr. Fitzgerald attacked Mr. Storrow as a corporation man and an aristocrat, declaring that he was using his wealth to influence the result. The chief battle was between these two antagonists, both of whom in the past have been Democrats. The other candidates cut but small figure. Out of a total of 95,125 votes cast, Mr. Fitzgerald received a plurality of 1223 over Mr. Storrow. Although it appeared that the "reform" element was

defeated in the election of Mr. Fitzgerald, the new City Council of nine members, which replaced the old double chambered Council of eighty-eight members, is controlled by members who were nominated by the Municipal League, a reform organization. The officials appointed by Mayor Fitzgerald, according to the laws laid down in the new city charter of 1909, must be competent to gain the approval of the State Civil Service Commission as experts, by either training, education or experience, in their respective lines of duty. During the year the Civil Service Commission, following this test, rejected on an average one-third of Mayor Fitzgerald's appointments. The mayor's acts and those of his subordinates are subject at all times to the investigation of a Finance Commission appointed by the governor.

Mr. Fitzgerald was inaugurated as mayor on February 7. The death of Congressman Lovering (q. v.) of the Fourteenth District on February 4 made it necessary to hold an election for his successor. The Republicans nominated William R. Buchanan and the Democrats selected as their Candidate Eugene N. Foss, formerly a Republican, and a wealthy manufacturer. Mr. Foss made a spirited campaign, in which he attacked the Payne-Aldrich tariff bill, favored reciprocity with Canada and took a position closely akin to that of the insurgent Republicans. Although the district is normally very strongly Republican, Mr. Foss was elected by about 5600 majority. This election coming as the first congressional election after the passage of the Payne-Aldrich bill attracted much attention throughout the country and it was hailed by the Democrats as prophetic evidence of the sentiment in their favor which was to give them a Democratic Congress in November.

The Republican State Convention met in Boston on October 6. Governor Eben S. Draper was renominated by acclamation. The platform adopted admitted that the Payne-Aldrich tariff bill had increased duties on many articles, but asserted that these were mostly luxuries. The administration of President Taft was commended as was also his programme for future legislation as proposed in his letter to the Chairman of the Republican Congressional Campaign Committee. Senators Lodge and Crane, particularly the former, were warmly praised. The platform recommended the establishing of a tariff board and declared for the amendment of the tariff one schedule at a time. In addition to the nomination for governor, Louis A. Frothingham of Boston was renominated for lieutenant-governor.

The Democratic State Convention was one of the most turbulent ever held in the State and its results were unique in the State's political history. There were three candidates for the nomination for governor, Congressman Eugene N. Foss, James H. Vahey, and Charles S. Hamlin. The votes of the delegates necessary for a choice were 496. On the first ballot Mr. Foss had 383, Mr. Vahey 302 and Mr. Hamlin 295. The Convention after balloting many times could not decide between the candidates and final decision was left to a committee of four, with authority to name the permanent candidates. This committee was unable to agree on a candidate, as it divided equally between Mr. Foss and Mr. Hamlin. The State Committee thereupon called for a straw

vote by mail by the accredited delegates to the convention to guide this committee in its selection. Mr. Foss, after the deadlock had lasted about a week, on October 15 declared that he would be a candidate for governor whether the committee named him or not. A nomination paper, under the designation "Democratic Progressive," was filed in his behalf. In order to have a regular Democratic candidate while the voting by mail was going on, the State Committee had appointed F. W. Mansfield as a "stop-gap" candidate. As a result of the mail vote, Congressman Foss had a lead of 11 votes over Charles S. Hamlin. Thereupon Mr. Hamlin and the provisional candidate withdrew, and Mr. Foss became the regular Democratic candidate and also retained the place on the ballot as a Democratic Progressive. The campaign following the nominations was spirited, many of the most important national Republican and Democratic leaders making speeches. Mr. Foss made his campaign almost exclusively on the tariff provision and the high cost of living. In the election on November 8, Mr. Foss was elected governor by about 35,000 plurality. He received 14,052 votes as a Democratic Progressive. The Republicans elected the remainder of the State ticket.\* The Democrats gained 51 seats in the legislature, but there still remains a Republican majority of 27. One Socialist was elected to the house, the first in several years. The election of a Senator is in the hands of the legislature of 1911, as Senator Lodge's term expires March 1 in that year. Senator Lodge was a candidate for re-election and he was bitterly opposed by Governor-elect Foss, who in December, 1910, spoke publicly against the Senator and published a number of letters in which he urged reasons against Senator Lodge's re-election.

**OTHER EVENTS.** On January 17 a special commission appointed to inquire into the alleged violation of charter provisions by the New York, New Haven and Hartford Railroad reported to the State Senate. The commission consisted of the Railroad, Bank and Tax Commissioners of the State. The violations alleged were the obtaining of legislation in Connecticut to permit a merger with the Connecticut Consolidated Railway Company in increasing its capital stock from \$27,500,000 to \$121,878,000 without authority from the State of Massachusetts, and in issuing bonds and other evidences of indebtedness in excess of its capital stock. The commission declared that the questions presented to it for consideration were, first, whether the charter should be repealed, and second, what action other than this, if any, should be taken. The committee reported that the company's report showed \$1,000,000,000 of capital stock outstanding, \$234,859,875 of bonds and debentures and \$5,250,000 of loans and notes payable. The committee reported that the situation, as thus indicated, presented to their minds a very convincing argument

against the repeal or forfeiture of the charter.

A commission authorized by the legislature in February was appointed by Governor Draper on March 9, to investigate the high cost of living, which commission later made a detailed report to the legislature. See articles **AGRICULTURE** and **PRICES**.

On October 17 occurred the death of Julia Ward Howe of Boston, a distinguished author and leader in reform movements, known especially as the writer of the "Battle Hymn of the Republic," and on December 3, that of Mary Baker Eddy of Newton, founder of the Christian Science faith. See **HOWE, JULIA WARD**, and **EDDY, MARY BAKER**.

In July, William T. White, Mayor of Lawrence, was found guilty of endeavoring to secure the removal by bribery of the fire chief of that city. With him were indicted an ex-alderman and three others. White was sentenced to three years in the House of Correction and a fine of \$1000. This is the first time in the history of the State that the mayor of a city has been sentenced to be imprisoned.

On August 5, President Taft made the principal address in the dedication of the Pilgrim Monument at Provincetown.

**LEGISLATION.** Among the important measures enacted at the legislative session of 1910 were the following: A measure was enacted making the fraudulent hiring of motor vehicles a penalty. Non-residents of the State are excused from registration of automobiles when their home States extend similar privileges to citizens of Massachusetts. Certain important measures were passed relating to banks and banking. One of these permits the bank commissioner to take possession of the savings bank or trust company whose capital has been impaired or charter violated, or when its business has been conducted in an unsafe or unauthorized manner. Laws were passed providing for the regulation of collection agencies. All persons, firms or corporations other than banks, trust companies and lawyers, who make a business of collecting debts are required, under a heavy penalty, to file a bond of \$5000, with sufficient sureties in favor of the State treasurer, on condition that the principal obligor will turn over the proceeds of all collections in accordance with the contract made with the creditor. This act is intended to check the dishonest practices of some collecting agencies. A special commission of three was appointed to investigate the problem of employment agencies and report to the next legislature. The laws relating to child labor were amended so that children under 18 years of age are forbidden to work in certain dangerous trades. Forging birth certificates is made criminal. Congress was asked by joint resolution to enact national and uniform child labor laws. School physicians are to examine applicants for school certificates. The Federal income tax amendment was defeated by a narrow majority in one House after passing the other. An attempt was made at reform in judicial procedure. It was provided that when in an action of contract a defendant has appeared, the plaintiff may file an affidavit of no defense, the clerk may issue an order on the defendant to show cause, and unless after seven days' notice the defendant consents to default and judgment or sets out the specific facts

\* The Republicans at the election regained the seat that Congressman Foss had captured earlier in the year, by the election of Robert O. Harris, but Congressman Charles G. Washburn of Worcester in the third district, Republican, was defeated by John A. Thayer, Democrat. In the fourth district John J. Mitchell, Democrat, was elected to Congress for the short term of the late Charles Q. Tirrell, but the long term was won by W. H. Wilder, Republican.

relied upon the court shall advance the action for speedy trial. The same statute provides for a speedy trial of appeals in suits for wages for personal labor. Measures were passed providing for the punishment of those giving obscene shows and entertainments tending to corrupt the morals of youth. A measure was enacted providing that prison-made goods shall be sold to public institutions instead of in open market. Several important measures were passed relating to education. Among these was one requiring compulsory instruction in "thrift" in all the schools of the State. A commission was appointed to investigate the subject of an employers' liability law and a law for workmen's compensation. A measure was passed permitting the risk of accident to be voluntarily assumed by the industry. Other provisions were enacted permitting the employer and the employees to establish coöperative retirement annuity and pension systems which do not apply simply to injured employees. An act was passed subjecting married women who have property to the amount of \$200 or more to liability jointly with their husbands for necessary debts incurred for family maintenance up to the amount of \$100. An act was passed forbidding the sale of cocaine except under certain conditions. Authority was given to authorize search warrants for the discovery of concealed supplies, and the confiscation of the drug when found. The sale of morphine or other narcotic drugs, either singly or in composition, is also regulated. A bona fide physician's prescription, except in the case of cough mixtures and similar medicines containing a small proportion of the noxious ingredient, is required. Amendments were made to the milk inspection law. A law was passed requiring tuberculosis exhibits in the public schools. Measures were passed to abate the smoke nuisance in Boston and vicinity, by specifying the number of minutes an hour during which stacks of different sizes and character shall be permitted to pollute the atmosphere. October 12 was made a legal holiday, to be known as Columbus Day. Measures were passed regulating health and accident policies of insurance. A law was passed requiring those who advertised for new workmen during the strikes and lockouts to specify the condition that exists. Among the laws passed relating to the selling of liquor was the so-called bar and bottle act. This forbids the use in the same premises of a license for selling in containers and a license for an open bar. A State art commission of five members was created. Its function is to advise the proper officials on the artistic merit of all bridges, arches, gates, paintings, sculptures, and other art works on which it is proposed to spend the money of the State. A measure was passed permitting the voters of the city of Lynn to select from alternate forms of a new city charter, one of which provides merely for a mayor and eleven councilmen, four of them chosen at large and all without party designation, the other of which authorizes the commission form of government along the lines of that adopted at Des Moines, Iowa, and Galveston, Texas. An act was passed permitting towns and cities to establish retirement systems for their employees under the superintendence of the insurance commissioner. A novel law was that prohibiting the printing in town reports of names of persons aided by

the pauper fund. A joint resolution was passed, asking Congress to establish a "free port" within the limits of Boston Harbor where goods may be brought in free of duty and manufactured for export. A commission was appointed to investigate the question of a tunnel from the North to the South Station in the city of Boston, and another for the general improvement of transportation in and around that city. Important legislation was enacted relating to "white slaves" as a result of agitation carried on during 1909-10.

STATE OFFICERS. Governor, Eugene N. Foss, Democrat; Lieutenant-Governor, Louis A. Frothingham; Secretary of State, William M. Olin; Treasurer, Elmer A. Stevens; Auditor, Henry E. Turner; Adjutant-General, ———; Attorney-General, James M. Swift; Secretary of the Board of Agriculture, J. Lewis Ellsworth; Commissioner of Insurance, Frank C. Hardison; Secretary of the Board of Education, George H. Martin—all Republicans except Foss.

SUPREME JUDICIAL COURT FOR THE COMMONWEALTH. Chief Justice, Marcus P. Knowlton; Justices, James M. Morton, Arthur P. Rugg, Henry Newton Sheldon, John W. Hammond, William C. Loring, and Henry K. Braley; Clerk of the Court, Clarence H. Cooper—all Republicans.

STATE LEGISLATURE, 1911. Republicans, Senate, 26; House, 125; joint ballot, 151; Democrats, Senate, 14; House, 112; joint ballot, 126; Others, House, 3; joint ballot, 3; Republican majority, Senate, 12; House, 10; joint ballot, 22.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY. An institution for technical education in Boston, Mass., founded in 1864. The number of students enrolled in the several departments of the institute in 1910-11 was 1479 and the faculty numbered 241. There were no important changes in the faculty during the year. The benefactions received during the year 1909-10 amounted to \$57,249. The productive funds of the institute amounted to \$1,863,712 and the total income to about \$760,000. The library contains about 80,000 volumes. The president is Richard C. MacLaurin.

MATHEWS, SHALEH. See LITERATURE, ENGLISH AND AMERICAN, *Philosophy and Religion*.

MATTHEWS, BRANDER. See LITERATURE, ENGLISH AND AMERICAN, *Biography, Poetry and Drama*.

MATZKE, JOHN ERNST. An American scholar and educator, died September 17, 1910. He was born in Breslau, Germany, in 1862, and graduated from Hope College, Michigan, in 1882, studying afterwards at Johns Hopkins. In 1889-90 he was professor of French at Bowdoin College and in 1890-91, professor of Romanic languages at Indiana University. From 1891 to 1893 he was professor of Romanic languages at Johns Hopkins University, and from 1893 to the time of his death occupied the same chair at Leland Stanford, Jr., University. From 1903 he had been advisory editor of *Modern Philology*. He was the author of various textbooks on French and Spanish, and contributed philological and literary studies to philological publications.

MAUDE, AYLMER. See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**MAULSBY, DAVID LEE.** An American educator, died August 18, 1910. He was born in Baltimore, Md., in 1859. He received his early education in the public schools, but when still a youth, engaged in business. In 1879 he entered Tufts Divinity School and studied for two years, but resigned to enter business again. In 1883, when he was twenty-three years of age, he again entered Tufts College. Upon his graduation he became professor of Goddard Seminary at Barre, Vt. He held this position until 1891, when he was called to the chair of English literature and oratory at Tufts College. In 1900-1 he studied at the University of Chicago. He was the author of *Emerson; the Product of the Intervening Years*.

**MAURITANIA.** A civil territory in French West Africa (q. v.). Area, 890,000 square kilometres. Estimated population (1908), 225,105. Revenue in 1908, 1,470,847 francs (government subvention, 900,000 francs; direct taxes, 453,264; fines, 43,459; posts and telegraphs, 9030, etc.); expenditure, 1,426,975. The territory is administered by a commissioner (1910, Lieutenant-Colonel Patey) under the direction of the governor-general of French West Africa.

**MAURITIUS.** An island in the Indian Ocean; a British crown colony. Area, 705 square miles; population (1901), 375,385 (281,191 of Indian, the remainder of French or mixed descent). Capital, Port Louis (52,740 inhabitants). The whole island is practically given over to the growing of sugar for export, and the necessities of life have all to be imported. The chief trade is with India. Imports (1909) Rs. 28,937,065 (Rs. 17,210,947 in 1908), of which Rs. 7,476,451 from Great Britain (1908, Rs. 3,648,507); exports, Rs. 32,393,453 (1908, Rs. 33,464,263), of which Rs. 4,063,524 to Great Britain (1908, Rs. 3,653,900). Export of raw sugar (1908), Rs. 29,636,295. Vessels entered (1908), 203, of 383,798 tons (258,237 tons British); cleared, 207, of 385,251 (259,307 tons British). Railways (1909), 129½ miles; telegraph lines, 341; telephone lines, 55½; post-offices, 63. Revenue and expenditure (year 1908-9) Rs. 8,824,464 and Rs. 9,621,454 respectively. Public debt (1909), £1,305,900; paper circulation, Rs. 4,170,250. Governor and commander-in-chief (1910), Sir Cavendish Boyle. The island is subject to cyclonic disturbances.

Rodrigues, St. Brandon (or Cargados) Islands, the Chagos Islands, and the Trois Frères (or Eagle Islands) are dependencies of Mauritius.

**MAXIM, HUDSON.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**MAXIMUM AND MINIMUM TARIFFS.** See TARIFF.

**MAXWELL, Sir H. E.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**MAXWELL, W. B.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**MAYNE, C. E.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**MAYO, MARGARET.** See DRAMA.

**MAYOR, JOHN EYTON BICKERSTETH.** An English scholar and educator, died December 1, 1910. He was born in Ceylon in 1825 and was educated at St. John's College, Cambridge. In 1849 he was made a fellow of St. John's College.

From that year until 1853 he was assistant master of Marlborough College. He was ordained deacon in 1855 and priest in 1857. From 1863 to 1867 he was librarian of the University of Cambridge and in 1872 was chosen professor of Latin at Cambridge University, which post he held until the time of his death. From 1884 he was president of the Vegetarian Society. He wrote much and edited many editions of Latin texts. Among his published writings are the following: *Autobiography of Matthew Robinson* (1856); *Spain, Portugal, The Bible* (1895); *The Spanish Reformed Church* (1895). He also contributed many articles to the publications of the Cambridge Antiquarian Society and was an editor of the *Journal of Classical and Sacred Philology* and the *Journal of Philology*.

**MAYOTTE AND THE COMORO ISLANDS.** A group of islands, half way between Madagascar and the coast, belonging to France. Total area, 837 square miles; total population (1906), 96,314. Area of Mayotte, 140 square miles; about one-fourth the total population belongs to this island. Grande Comore, Moheli, Anjouan, and a number of smaller islands constitute the Comoro group. The cultivation of vanilla is increasing, that of sugar-cane declining. There are now but three sugar works and two rum distilleries. Coffee, tea, cacao and plants for the manufacture of perfumes are also grown. Imports and exports (1908), £54,000 and £115,200 respectively. The local budget balanced (1907) at 247,410 francs. French expenditure (budget of 1910), 3000 francs. Debt, January 1, 1907, 883,760 francs. An administrator (1910, M. Astor) is appointed for Mayotte, and for each of the three principal Comoros a resident. In February, 1910, the sultan of Grande Comore resigned to France his sovereign rights.

**MEAD, LARKIN GOLDSMITH.** An American sculptor, died October 15, 1910. He was born in Chesterfield, N. H., in 1835, and was educated in the public schools of Brattleboro, Vt. He began work as a hardware clerk at 15 years of age, but developing an artistic attitude he studied drawing and sculpture for two years under Henry K. Brown. After having produced several noteworthy works, he went to Italy, where he was attached to the United States Consulate at Venice, where his brother-in-law, William Dean Howells, was Consul. During the Civil War he acted for six months as an artist in camp for *Harper's Weekly*. Among his most notable works are the National Lincoln Monument at Springfield, Ill., the Soldiers' Monument at St. Johnsbury, Vt., statues of Ethan Allen at the National Art Gallery in Washington and in the State capitol at Montpelier, Vt. He produced also many ideal works, including "The Returned Soldier," "Sappho" and "The Recording Angel." He contributed also to the decoration of the agricultural building at the Chicago Exposition a pediment 60 feet long representing "The Return of Proserpine from the Realms of Pluto." Among the portrait busts which he made were those of Henry James, William Dean Howells, and John Hay. He executed also a colossal statue of the Mississippi River at the Minneapolis Court House and a colossal marble group, representing Columbus appealing to Isabella, at Sacramento, Cal. Mr. Mead was one of the best known of American sculptors.

**MEADE, ROBERT LEAMY.** An American army officer, died February 11, 1910. He was born in Washington in 1841 and was educated at Mt. St.

Mary's College and the United States Naval Academy. He was appointed acting midshipman in 1856, but resigned in 1858. In 1862 he became second lieutenant of the United States Marine Corps and was successively promoted until he became brigadier-general and retired in 1906. He was brevetted brigadier-general in the battle of Tientsin, China, receiving a congressional campaign medal for bravery. He was fleet marine officer of Admiral Sampson's fleet during the Spanish-American War. During the draft riots in New York City in 1863 he commanded a company of marines. He was captured in the same year and held a prisoner for fifteen months.

**MEAT AND MEAT INSPECTION.** The national inspection of meat in the United States has increased so that during the fiscal year ended June 30, 1910, it was only by strict economy that the work could be carried on within the standing appropriation of \$3,000,000. The inspection was carried on at 919 establishments in 237 cities and towns, or an increase of 43 establishments, as compared with the previous year. The results of inspections made before and at the time of slaughter are summarized in the following table:

**FEDERAL INSPECTION OF ANIMALS FOR THE TWELVE MONTHS ENDING JUNE 30, 1910**

Kind of animal	Ante-mortem inspections.			Post-mortem inspections.			
	Passed.	Suspd.	Total.	Passed for food	Passed for lard and tallow only	Condm'd	Total
Cattle .....	7,956,427	43,120	7,999,547	7,916,601	3,162	42,426	7,982,189
Calves .....	2,293,216	2,584	2,295,800	2,287,568	7	7,524	2,295,099
Sheep .....	11,155,646	8,989	11,164,635	11,138,781	29	11,137	11,149,937
Goats .....	116,035	28	116,063	115,585	.....	226	115,811
Swine .....	27,717,164	14,463	27,731,627	27,532,600	70,982	52,439	27,656,021
<b>Total .....</b>	<b>49,238,488</b>	<b>69,184</b>	<b>49,307,672</b>	<b>48,991,135</b>	<b>74,180</b>	<b>113,742</b>	<b>49,179,057</b>

Agriculture certified for export 214,355,742 pounds of beef, 4,680,846 pounds of mutton and 596,325,562 pounds of pork, a total of 810,362,150 pounds and a decrease of 30.7 per cent. from the previous year. The rapid decline in the exports of meats that has taken place during the last few years, due largely to the increased home consumption, continued with all kinds except mutton, of which there was a slight increase, as is shown in the accompanying table:

During the fiscal year ended June 30, 1910, the United States exported 139,430 live cattle valued at \$12,200,154 and 44,517 live sheep valued at \$209,000, a decrease of 68,112 cattle and 156,155 sheep, as compared with the exportations of the previous year. Ten years ago Argentina exported only 25,000 tons of frozen and chilled beef, as against 150,000 tons sent from this country. Five years later her exports of beef passed ours, and in 1909 they amounted

**EXPORTS OF PRINCIPAL MEAT PRODUCTS DURING THE PAST THREE FISCAL YEARS.**

Product	1908		1909		1910	
	Pounds	Values	Pounds	Values	Pounds	Values
Beef, canned .....	23,376,447	\$2,467,875	14,895,527	\$1,645,822	14,804,596	\$ 1,678,452
Beef, fresh .....	201,154,105	20,339,377	122,952,671	12,698,594	75,729,666	7,733,751
Beef, salt, etc. ....	47,896,087	3,219,950	44,789,063	3,472,367	36,871,813	2,783,701
Tallow .....	91,397,507	5,399,219	53,332,767	3,000,366	29,379,992	1,779,615
Bacon .....	241,189,929	25,481,246	244,578,674	25,920,490	152,163,107	18,381,050
Hams and Shoulders ..	221,769,634	25,167,059	212,170,224	23,526,307	146,885,385	17,837,375
Pork, canned .....	4,957,022	532,442	5,759,930	620,193	4,062,022	459,843
Pork, fresh .....	16,374,468	1,551,450	9,555,315	938,025	1,020,278	126,883
Pork, salt, etc. ....	149,505,937	13,332,654	52,354,980	4,599,431	40,031,699	4,421,844
Lard .....	603,413,770	54,789,743	528,722,933	52,712,369	362,927,671	43,301,156
Lard compound and other substitutes for lard	75,183,201	6,035,318	75,183,196	6,115,307	74,556,603	6,887,738
Mutton .....	1,185,040	117,688	1,498,674	141,654	1,989,472	213,477
Oil and Oleomargarine	215,479,332	19,578,222	182,874,304	19,420,376	129,510,307	14,655,052
Poultry and Game .....	.....	881,792	.....	848,644	.....	599,548
Sausage & sausage meats	8,367,495	939,472	8,538,058	997,655	5,072,255	627,609
Sausage casings .....	.....	3,959,384	.....	3,520,191	35,418,957	4,503,339
All other meat products ..	.....	3,924,511	.....	2,843,583	.....	2,391,864
<b>Total value .....</b>	<b>\$187,847,407</b>		<b>\$163,021,544</b>		<b>\$128,382,302</b>	

to 210,657 tons while those of the United States had fallen to 55,746 tons. Thus Argentina now occupies the place formerly held by the United States as a purveyor of beef to Europe, being the largest exporter of beef in the world and, next to New Zealand, the largest shipper of mutton. The output of the seven freezing com-

panies in that country for the year 1909 is reported as 2,661,343 carcasses of frozen mutton or lamb, 1,459,217 frozen quarters and 1,051,465 chilled quarters of beef. An additional company in Uruguay exported 104,185 carcasses of mutton or lamb and 87,091 frozen beef during the same period. According to a computation made in

the last pastoral census the price paid for cattle in Argentina has increased by 50 per cent. during the last ten years. Although the United States has more than twice as many head of cattle as Argentina, its cattle are nevertheless fewer in number than its inhabitants, so a large proportion must go for home consumption. Argentina, on the other hand, has more than four times as many cattle within its borders as population.

From an international standpoint the most important recent development in the meat industry of the Argentine Republic is the entrance and growing ascendancy of North American interests, which began operations in that field only ten years ago. Already these interests have attained such a position that they are a decided if not a dominating influence in the progress of the trade and the control of prices. This position held by the North American companies in Argentina apparently puts the meat industry of the two principal producing countries in the same hands. Argentina has been looked upon as a competitor of the United States in the beef industry, and has even been considered by some as a possible source of meat for this country. The present operations of the North American packers in Argentina, however, have nothing to do with the meat supply of this country. Even were it not for the position of the American packers in the Argentina field there would be no likelihood that the United States consumers could secure a meat supply from that quarter at less than prevailing prices and probably not at such low figures, as there is an ample market in Europe. For the year 1909 Great Britain took 98 per cent. of the exports both of beef and mutton, but this represented only 65 per cent. of Great Britain's total imports of beef and 27 per cent. of her total imports of mutton. Should shipments of beef to this country be made from South America they will probably be directed by the same interests that supply the markets here, not in opposition to them. For an account of the high prices of meat in 1910 and the agitation in connection therewith, see **FOOD AND NUTRITION**, paragraph *Cost of Food*.

**MECHANICAL ENGINEERING.** See **AERONAUTICS**, **AUTOMOBILES**, **INTERNAL COMBUSTION ENGINES**, etc.

**MEDICAL EDUCATION.** See **UNIVERSITIES AND COLLEGES**.

**MEDICAL PROGRESS IN 1910.** The problems incident to preventing and controlling infectious diseases among large populations engrossed the attention of many sanitarians throughout the civilized world. (See **HYGIENE**, **MALARIA**, **PLAGUE**, **PELLAGRA**, **RABIES**, **TETANUS**, **TYPHOID FEVER**, **VACCINATION**.) Diseases peculiar to hot climates assumed increasing importance, European countries being engaged in making life safe in their African colonies, and the United States being occupied with a similar task in the Philippines and the Panama Canal zone. (See **BERIBERI**, **INSECTS** AND **THE PROPAGATION OF DISEASE**, **SLEEPING SICKNESS**, and **TROPICAL MEDICINE**.) A great deal of investigation was undertaken into the problems of immunity and the use of serums and vaccines in the cure of infectious diseases (see **SERUM THERAPY**), and in diagnosis by means of the X-ray (see **PHOTOTHERAPY**). Several new drugs were introduced, one of them thought to be a specific for syphilis. (See **ARSENOBENZOL**, **CHINOSOL**, **OXYNTIN**, **THIOL**.) The

search for the cause of cancer and for better means to check the spread of tuberculosis was continued. (See **CANCER**, **TUBERCULOSIS**.) A notable campaign for the "Prevention of Insanity" was begun in New York State. (See **INSANITY**.) Other medical items or statistics will be found under their appropriate heads.

**MEITZEN**, AUGUST. A German statistician, died January, 1910. He was born in Breslau, 1822, and was educated at the universities of Heidelberg and Tübingen. He was a prominent member of the statistical bureau and in 1892 was made honorary professor of the science of statistics and political economy at the University of Berlin. Among his published writings are the following: *Die internationale land- und forstwirtschaftliche Statistik* (1873); *Geschichte, Theorie und Technik der Statistik* (1886); and *Die Mitverantwortlichkeit der Gebildeten für das Wohl der arbeitenden Klassen* (1876).

**MEMPHIS**, EXCAVATIONS IN. See **ARCHÆOLOGY**.

**MENCKEN**, H. L. See **LITERATURE**, **ENGLISH AND AMERICAN**, *Political and Social Science*.

**MENDEL'S THEORY.** See **BIOLOGY**.

**MENPES**, M. See **LITERATURE**, **ENGLISH AND AMERICAN**, *Travel and Description*.

**MENTAL DISEASES.** See **INSANITY**.

**MERCHANT MARINE.** See **SHIP SUBSIDIES**, **UNITED STATES**, and foreign countries.

**MERCURY.** See **ATOMIC WEIGHTS**.

**MEREDITH**, GEORGE. See **LITERATURE**, **ENGLISH AND AMERICAN**, *Fiction*.

**MERIDIAN ASTROMETRY.** See **CARNegie INSTITUTION**.

**MERRITT**, WESLEY. An American soldier, died December 3, 1910. He was born in New York City in 1836 and graduated from the United States Military Academy in 1860. On his graduation he was assigned to the dragoons and in 1861 was promoted to be first lieutenant and to be captain in 1862. He participated in all the battles of the army of the Potomac and received six successive brevet promotions for gallantry. He accompanied General Sheridan on the cavalry raid toward Charlottesville in 1865 and commanded a cavalry division in the Shenandoah campaign and in the Appomattox campaign. He was one of the three commanders in the Federal army appointed to arrange with the Confederate commander for the surrender of the army of Northern Virginia. After the Civil War he participated in several Indian campaigns. From 1882 to 1897 he was superintendent of the United States Military Academy. While he was serving as commanding officer in the Department of the Atlantic in 1898 he was assigned to the command of the first military expedition to the Philippines. He continued there until summoned to the aid of the peace commissioners in session in Paris in December of that year. He returned to the United States and was placed in command of the Department of the East until his retirement in 1900.

**MESOPOTAMIA**, EXCAVATIONS IN. See **ARCHÆOLOGY**.

**MESOPOTAMIAN SWAMP LANDS.** See **DRAINAGE**.

**METALLIC RADIUM.** See **PHYSICS**.

**METALLURGY.** See **CHEMISTRY**, **INDUSTRIAL**; **IRON AND STEEL**, etc.

**METALS.** See CHEMISTRY, INDUSTRIAL.

**METAPHYSICS.** See PHILOSOPHY.

**METEOROLOGY.** ACTION-CENTRES OF THE ATMOSPHERE. In 1909, important work was done by Hildebrandsson and others in correlating the meteorological conditions in those regions of the globe underlying what Teisserenc de Bort in 1881 termed "atmospheric action-centres." It has been established that the variation in the intensity and position of these action-centres is the principal factor determining the general character of the seasons even in regions lying far apart. From Japanese observations covering a period of thirty years, Okada, the chief forecaster of the Japanese Weather Bureau, has added to the list of centres interaction of which seems to be well established. In winter a high-pressure area exists over Siberia, accompanied by a pronounced low-pressure area over the North Pacific Ocean, while in summer these conditions are reversed. During the winter any abnormal rise in pressure over the Asiatic continent is invariably attended by abnormally cold weather in Japan and on the neighboring coast of the continent. This is particularly the case after the passage of a cyclonic centre from the continent over the Sea of Japan and its disappearance to the northeast over the Sea of Okhotsk. The cold weather persists so long as the anti-cyclonic conditions on the continent continue. In the early summer the existence of a high-pressure area over the northwestern portion of the Pacific Ocean and the Sea of Okhotsk is accompanied by cool weather in northern Japan, but, with the disappearance of the anti-cyclone towards the east, warm air flows in and the temperature rises accordingly.

McAdie called attention to the importance to American meteorology of a knowledge of the movements of the pressure-areas of the Pacific Ocean. He himself has established two general laws governing the weather on the northern Pacific coast of this continent. When the continental anti-cyclone in winter overlies Oregon, Idaho, Utah, and Nevada, the general drift of the surface air is from the north or northeast; and such a circulation favors fair weather, with little precipitation. But if the low-pressure area of the North Pacific Ocean extends well to the south along the Oregon coast and the continental high overlies Assiniboia and Montana, the general drift of the surface air in California and on the Pacific coast is from the south or southeast; and frequent and heavy rains occur west of the Sierras, with heavy snow in the mountains.

**METEOROLOGICAL PHENOMENA AND HALLEY'S COMET.** Careful preparations were made for the observation of meteorological phenomena during the transit of Halley's comet across the face of the sun and the passage of the earth through the tail of the comet, which events were expected to take place on May 18. A circular letter was sent out by Professor Willis L. Moore, chief of the United States Weather Bureau, to nearly two hundred stations in the United States and the West Indies, asking that, on May 17, 18 especially, and 19, particular observations be taken of the occurrence of auroral displays, meteoric trails, the color of the sun and sky, twilight phenomena, luminous clouds, the zodiacal light, solar and lunar halos, and any other meteorological phenomena which might seem to be worth not-

ing. As stated in the article ASTRONOMY (q. v.), it seems probable that, on account of its pronounced curvature, the tail did not begin to sweep past the earth until May 20, and that at that time the earth was some four million miles south of the plane of the comet's orbit and was therefore not enveloped by the tail. As it was, few, if any, positive results were recorded; and, as most of the phenomena noted have been seen when there was no comet to which they could have been attributed, it seems fair to infer that the comet was not responsible for them. Possibly the most striking observations were those of Professor Max Wolf, of the Königstuhl Observatory, who reported that late in the afternoon of May 19 a bishop's ring was seen round the sun, and that this was followed by a twilight of unexpected intensity and duration; that three twilight purple glows followed one another and that all the peculiar sky phenomena observed after the eruptions of Krakatoa and Pelée appeared again at this time, but were intensified. In the evening a bishop's ring appeared round the moon. Both rings appeared to be more intense than if due solely to atmospheric effects, but no meteors or auroras were seen.

An attempt by M. Claude of Boulogne-sur-Seine, to detect cometary matter among the residual inert gases left from the liquefaction of air resulted in failure.

**SOLAR DISTURBANCES AND TERRESTRIAL TEMPERATURES.** In an effort to bring together harmoniously, as cause and effect, a number of solar and terrestrial phenomena, W. J. Humphreys of the Mount Weather Observatory sought to connect the changes in the number and extent of sunspots, flocculi, prominences and coronal streamers with such terrestrial phenomena as auroral displays, magnetic storms, temperature changes, rainfall, etc. He concluded that an increase in sunspots was accompanied by a decrease in terrestrial temperatures, but that the latter was far greater than could be accounted for by the decreased radiation from the spot-area alone. It was found that the change in the temperature of the earth from spot maximum to spot minimum did not depend necessarily on a change in the solar constant; it was probably connected closely with a change in the absorptive properties of the atmosphere, caused by a variation in the amount of ozone produced by ultra-violet radiation and by auroral discharges.

**PHOTOGRAPHING THE AURORA BOREALIS.** On account of the feeble light of the aurora, as well as its mobility, which necessitates short exposures, the problem of photographing the aurora has hitherto been looked upon as well-nigh impossible of solution. Carl Störmer, by using a cinematograph lens of 25 mm. diameter and 50 mm. focal length, in conjunction with Lumière's extra rapid plates, solved the difficulties peculiar to the problem, and in February and March succeeded in taking about 800 photographs, fully half of which were successful. The length of exposure varied from a fraction of a second to twenty seconds, depending on the brightness and motion of the aurora. By taking a series of simultaneous photographs at two stations 4.3 kilometres apart, data were obtained from which the extent and location of the aurora were derived. The heights determined from four sets of photographs which accompanied his communication to the French

Academy of Sciences were 166, 55, 190 and 120 kilometres respectively.

**Books.** Among the more important works published in 1910 were the following: Moore, *Meteorology, Practical and Applied*, 2d edition; Bjerknes, *Dynamic Meteorology*; Pernter, *Meteorologische Optik*, Bd. IV; Hann, *Handbuch der Klimatologie*, Bd. II, *Klimatographie*, teil i, *Klima der Tropenzone*.

**METHODIST EPISCOPAL CHURCH.** A Protestant religious denomination which had its beginning from the great movement under the leadership of John Wesley which was carried on from the middle of the Eighteenth Century. The first Conference of the church in the United States was held in 1773 and an organization was formed in 1775. The Episcopal College, composed of the bishops of the church, consisted in 1910 of 31 members, 24 general superintendents, and 7 missionary bishops.

According to the United States census of religion made in 1906 and published in 1910, the total number of communicants in the Methodist Episcopal Church in the former year was 2,986,154, with 28,345 church edifices and 17,479 ministers. As compared with statistics for 1890 this shows an increase of 4082 organizations and 745,800 communicants. The value of the church property in 1906 was \$163,357,805, an increase of \$66,634,397 over 1890. The Methodist Episcopal Church ranks first in the number of communicants among the separate Protestant denominations of the United States.

According to the *Methodist Episcopal Year Book*, the total membership of the denomination, including full members and probation members, was in 1910 3,485,983 as compared with 3,444,606 in 1909. The full members numbered 3,166,446. In the Sunday schools of the denomination there were in 1910 3,884,168 officers and teachers, with 35,595 schools. The value of the church property was \$180,821,057, while the churches numbered 30,304. The total receipts for missions from all conferences from October 31, 1909, to November 1, 1910, was \$1,156,794. Missions of the church are carried on through the Board of Foreign Missions. Missionaries are stationed in all parts of the world. In the non-Christian lands the denomination has 781 foreign missionaries, 2928 native preachers, 78,931 full members and 131,430 probationers. In Japan there are 86 Methodist Episcopal foreign missionaries. The Japan Methodist Church was organized in 1907. In Roman Catholic lands there are 180 foreign missionaries and in Greek Church lands five foreign missionaries. In 1910-11 the General Conference of the church observed the quarter centennial of the founding of the church.

Home missions are carried on through the Board of Home Missions and Church Extension. This Board has care of all missionaries and church extension interests in the United States and insular possessions, except in the Philippine Islands, where it is responsible for church extension interests alone.

The educational work of the denomination is in the hands of the Board of Education. The object of the Board is the promotion of the educational work of the church. Provision is made for the aid of deserving students. Under the auspices of the denomination are 45 colleges and universities for white students and 8 for colored students. There are 35 professional

schools for white students and 5 for colored students. In addition, there are five missionary institutes and Bible training schools. In the colleges for white students there were in 1910 13,563 students and in the colleges for colored people, 222. The total value of educational property under the control of the church in 1910 was \$50,214,561. Among other church organizations are the Freedmen's Aid Society, which carries on work among the negroes of the South, the Board of Conference Claimants, the Methodist Brotherhood and the National City Evangelization Union. The women of the church are also organized into a number of organizations. The denomination sustains many benevolent institutions in various parts of the country.

During the year the Methodist Episcopal Church sustained severe losses in the deaths of Bishop Cyrus D. Foss (q. v.), Borden P. Bowne, D.D., Bishop Henry Spellmeyer (q. v.) and Dr. Stephen Van Rennselaer Ford. In 1911 will be held the fourth Ecumenical Council of the Church. This is a combination of all the branches of the Methodist denomination in Great Britain, Ireland and Australia, United States and Canada, and includes the Methodist Church in Japan. The meeting will be held in Toronto, Canada, October 4-17.

**METHODIST EPISCOPAL CHURCH, SOUTH.** A Protestant religious denomination which was founded in 1845 as the result of a separation of a body of the members of the Methodist Episcopal Church, who differed on the question of slavery. The denomination is found largely in the South. In 1910 it numbered 1,817,732 communicants, 6388 traveling preachers and 5015 local preachers. There were in the Sunday schools of the denomination 1,258,467 scholars and 120,861 officers and teachers. At the head of the denomination are seven bishops. The Epworth League had 141,928 members. The denomination carries on missions in Japan, Korea, China and other foreign countries. Under its control are one university, 15 colleges and 106 unclassified schools. The endowment of these amounts to about \$5,000,000. The conferences numbered 47. The publishing house of this denomination is at Nashville, Tenn., where are published the *Methodist Review*, the *Christian Advocate* and a number of other denominational publications.

**METHODIST PROTESTANT CHURCH.** A Protestant religious denomination founded in 1828 by members of the Methodist Episcopal Church who withdrew from that body on account of the refusal of the General Conference in 1824 to admit laymen. The denomination assumed its present name in 1830. In 1910 there were 188,806 communicants, 2390 church edifices and 1362 itinerant preachers. The denomination is found in various parts of the country but is strongest in the South. Efforts have been made in recent years to bring about a union between the Congregational Church, the United Brethren (q. v.) and the Methodist Protestant Church, but these have been in abeyance for several years as a result of the action of the National Council of the Congregational churches in 1907 in voting to defer action. The denomination carries on foreign and domestic missions and maintains publishing houses in Baltimore and Pittsburgh. Among its publications are *The Methodist Protestant*, *The*

*Methodist Recorder*, and several Sunday school and other periodicals.

**METROPOLITAN LIFE INSURANCE SOCIETY.** See **INSURANCE.**

**METROPOLITAN MUSEUM OF ART.** An institution incorporated under the laws of the State of New York in 1870 for the purpose of establishing a museum and library of art and to encourage the application of the sciences and manufactures to practical life. The Museum has its collections in a handsome building in Central Park which is owned by the city and is leased by a corporation. Additions to the building have been under construction for several years. During the year 1910 744,449 persons visited the Museum as compared with 937,833 in 1909. The unusually large attendance in the latter year was the result of special exhibitions held during the Hudson-Fulton celebration. The number of accessions during the year was 10,521 objects of art, of which 7746 were acquired by gift or bequest and 2283 were secured by purchase. Of the new accessions, 59 were paintings and 41 objects of sculpture. Twenty-four of the paintings acquired were by American artists. The loans for the year numbered 6527, including a number of important collections loaned by J. Pierpont Morgan. The Museum received several important bequests during the year (see **GIFTS AND BEQUESTS**). For several years expeditions have been maintained in Egypt and important contributions have been made to the science of archaeology (see **ARCHAEOLOGY**). Sir Caspar Purdon Clark, who resigned as director during the year on account of illness, was succeeded by Mr. Edward Robinson. The expenditure for administration and maintenance of the Museum during 1910 was \$324,587. The city contributed \$200,000 toward the payment of this amount, and \$8002 was received for admissions on pay days at the Museum, the balance being contributed by the trustees.

**MEXICO.** A North American republic. The capital is the City of Mexico.

**AREA AND POPULATION.** The area of the 27 states, three territories, and Federal District is officially stated at 1,987,201 square kilometres (767,258 square miles). The census of 1900 showed a population of 13,607,259, of whom 19 per cent. were white, 38 per cent. Indian, and 43 per cent. mixed. Foreigners numbered 57,588, including 16,278 Spaniards and 15,266 Americans. Roman Catholics, 12,380,245; Protestants, 51,795. The results of the census of October, 1910, are not yet available, though it will probably show a total population of about 16,000,000. Provisional returns for the larger capital cities are: Mexico City, 470,659, against 368,898 in 1900 (entire Federal District, 719,662, against 541,516 in 1900); Guadalajara, 118,794; Puebla, 101,214; San Luis Potosí, 82,946; Monterey, 81,006; Mérida, 61,999; Aguascalientes, 44,800; Morelia, 39,116; Chihuahua, 39,061; Pachuca, 38,620; Oaxaca, 37,469; Guanajuato, 35,147; Saltillo, 35,063; Querétaro, 35,011; Durango, 34,085; Toluca, 31,247. Figures for 1905 (not quite complete) show 461,661 births (186,248 illegitimate), 432,067 deaths, and 55,776 marriages.

**EDUCATION.** Public instruction (which is free, primary being nominally compulsory) is controlled by the state governments within their jurisdictions and by the central government in the Federal District (including the

City of Mexico) and the territories. Subject to the central government also are various secondary or collegiate institutions within the states. Official figures relating to public instruction and published in 1910 for the year 1906 are as follows: Infant schools, 72, pupils, 7491; elementary schools (primary), 8451, pupils, 542,539; elementary schools (superior), 354, pupils, 51,789; secondary and preparatory (including collegiate) schools, 38, pupils, 4581; professional schools, 66, students, 8734. Private, clerical, and association schools in 1906 numbered 2562, of which 214 were infant schools, 2205 elementary (primary), 111 elementary (superior), 16 secondary and preparatory, and 16 professional; their total enrollment, 163,020. In recent years there has been considerable educational progress. At the centennial celebration in September, 1910, several of the professional institutions were reorganized to constitute the National University of Mexico.

**INDUSTRIES.** Mexico is pre-eminently a mining country. The value of the mineral production during the year ended June 30, 1909, is stated as follows, in American money: Silver, \$38,383,896; gold, \$22,351,047; copper, \$10,150,737; lead \$3,185,706; zinc, iron and other metals, \$2,138,988; coal, \$2,191,200; mineral oil, \$1,394,400; total, \$79,795,974. In the last few years gold production has shown a rapid development.

The agricultural yield, in proportion to the capabilities of the country, is small. The annual value of the products of the soil and of cattle marketed is about \$200,000,000, of which the chief items, representing a fair average product, are: Corn, \$50,000,000; cotton, \$17,000,000; henequen, \$16,000,000; wheat, \$13,000,000; sugar and molasses, \$13,000,000; spirits, \$10,000,000; coffee, \$8,000,000; beans, \$6,000,000; and woods, \$5,000,000. Estimates of sugar production: 1899-1900, 75,000 tons; 1907-8, 123,000 tons; 1908-9, 143,000 tons; 1909-10, 160,000 tons. In the latter year, the output of molasses was about 85,000 tons; in 1909, coffee, 81,000,000 pounds; cacao, about 2,000,000 pounds.

The leading manufactures include cotton textiles, tobacco goods, sugar, and spirits. At the end of the fiscal year 1909, there were 146 cotton factories (of which 17 were idle), with 726,278 spindles, 25,327 looms, and 14 print machines. Consumption of raw cotton, 35,434 metric tons; output, 13,887,911 bolts of various fabrics and 1,952,000 kilos of yarn; declared first-hand sales, \$21,598,266. There were 437 tobacco factories, producing in the year 505,437,551 packets of cigarettes, 81,336,415 cigars, and 77,000 kilos of pipe tobacco. There are a number of jute factories, linen and woolen mills, paper mills, iron foundries, soap factories, breweries, packing houses, one silk mill, etc., for which statistics are not available.

**COMMERCE.** For fiscal years ending June 30, the values of imports and exports are stated as follows, in American money:

	1908	1909	1910
Imports .....	\$110,406,216	\$ 77,953,442	\$ 97,039,050
Exports .....	120,884,620	115,088,606	129,508,002

Analysis of the imports shows (values being given in thousands of U. S. dollars):

Imports	1908	1909	1910
<b>Manufactures:</b>			
Iron and steel.....	15,293	10,132	13,764
Machinery, etc.....	14,267	10,026	10,432
Chemicals, etc.....	5,154	4,810	5,597
Ceramics, etc.....	6,207	5,316	5,552
Cotton goods.....	8,796	4,655	5,390
Alcoholic liquors..	3,568	2,772	3,263
Animal prods.....	3,573	2,764	3,207
Vehicles.....	3,691	2,148	2,866
Wool mfs.....	3,221	1,597	2,212
Paper and mfs.....	1,963	1,916	2,060
Leather mfs.....	2,091	1,492	1,843
Wood mfs.....	2,336	1,608	1,706
Gold, silver.....	3,465	680	1,612
Copper mfs.....	2,307	1,342	1,505
Arms, explosives..	1,819	1,263	1,448
Silk mfs.....	1,002	436	620
Various veg. mfs.	1,168	677	584
Other mfs.....	5,735	4,036	4,840
<b>Total mfs.....</b>	<b>85,655</b>	<b>57,668</b>	<b>68,500</b>
<b>Raw Materials:</b>			
Grain, fruit.....	3,130	4,028	10,017
Stone, etc.....	5,032	2,355	3,517
Sundry vegetable..	3,073	2,428	3,000
Timber, etc.....	3,625	2,448	2,740
Textile fibers.....	1,024	2,220	2,459
Copper.....	1,552	1,202	1,773
Peltry.....	904	775	981
Livestock.....	1,175	671	696
All other.....	1,526	1,172	1,337
<b>Total raw.....</b>	<b>21,041</b>	<b>17,300</b>	<b>26,521</b>
<b>Imps. unspecified..</b>	<b>3,709</b>	<b>2,986</b>	<b>2,019</b>
<b>Total imp. ....</b>	<b>110,405</b>	<b>77,953</b>	<b>97,039</b>

Classified exports are valued as follows (in thousands of United States dollars):

	1908	1909	1910
<b>Silver:</b>			
Bullion.....	34,471	31,759	33,908
Ores, cyan., etc....	6,461	4,965	4,072
Foreign specie ...	82	49	42
Mex. dollars.....	5,306	1	.....
<b>Total silver ....</b>	<b>46,320</b>	<b>36,773</b>	<b>38,022</b>
<b>Gold:</b>			
Bullion.....	11,503	18,199	19,695
Ores, cyan., etc....	1,881	1,311	1,533
Foreign specie ...	2,513	16	3
Mex. specie.....	.....	.....	2
<b>Total gold.....</b>	<b>15,897</b>	<b>19,527</b>	<b>21,233</b>
<b>Copper and ore....</b>	<b>12,362</b>	<b>10,151</b>	<b>13,033</b>
<b>Lead and ore.....</b>	<b>2,662</b>	<b>3,186</b>	<b>3,991</b>
<b>Other minerals ...</b>	<b>1,592</b>	<b>2,144</b>	<b>2,269</b>
<b>Total minerals...</b>	<b>78,834</b>	<b>71,760</b>	<b>78,548</b>
<b>Vegetable prods.:</b>			
Henequen.....	13,456	11,893	11,003
Rubber.....	4,338	4,252	8,347
Guayule.....	612	2,261	4,715
Coffee.....	5,285	6,247	3,987
Chicle.....	1,121	1,219	1,698
Chick peas.....	1,702	1,050	1,557
Ixtle.....	1,445	1,430	1,539
Broom root.....	1,169	1,011	1,362
Vanilla.....	850	818	785
Leaf tobacco.....	1,403	850	330
All other.....	3,579	2,798	3,383
<b>Total veg. ....</b>	<b>34,960</b>	<b>33,830</b>	<b>38,707</b>
<b>Animal prods.:</b>			
Hides, skins.....	3,380	4,490	6,316
Livestock.....	1,109	1,982	2,846
All other.....	321	469	850
<b>Total animal ...</b>	<b>4,810</b>	<b>6,942</b>	<b>10,012</b>
<b>Manufacturers ...</b>	<b>1,503</b>	<b>1,269</b>	<b>1,761</b>
<b>All other exps.....</b>	<b>778</b>	<b>1,268</b>	<b>480</b>
<b>Total exps. ....</b>	<b>120,885</b>	<b>115,089</b>	<b>129,508</b>

Imports by countries (in thousands of United States dollars):

	1908	1909	1910
United States ....	49,383	30,693	36,983
Great Britain ....	16,307	9,858	11,081
Germany.....	14,064	8,534	10,042
France.....	9,851	6,154	8,712
Spain.....	3,746	2,578	2,629
Belgium.....	1,615	993	1,226
Canada.....	409	715	1,144
All other.....	5,634	4,021	5,991
<b>Total.....</b>	<b>110,406</b>	<b>77,953</b>	<b>97,039</b>

Exports by countries (in thousands of United States dollars):

	1908	1909	1910
United States ....	84,722	86,126	98,095
Great Britain ....	13,055	12,018	14,210
France.....	6,172	5,483	6,117
Germany.....	11,145	6,404	4,206
Belgium.....	3,006	2,892	3,805
All other.....	2,784	2,166	3,075
<b>Total.....</b>	<b>120,885</b>	<b>115,089</b>	<b>129,508</b>

**COMMUNICATIONS.** In his annual message, September 16, 1910, the President reported that railways under Federal jurisdiction aggregated 19,719 kilometres; under state jurisdiction, 4840; total, 24,559 (15,256 miles), against 24,161 kilometres as stated in the message of September 16, 1909. The Federal government owns or controls about 14,000 kilometres. New lines and extensions are under construction or projected.

For the fiscal year 1910 railway earnings are reported as \$34,596,280 gross, or \$13,794,074 net. Of especial interest is the volume of business now being done by the Tehuantepec Railway, which connects Puerto Mexico, on the Atlantic seaboard, with Salina Cruz, 190 miles distant, on the Pacific. In 1907, the first year of its operation, this line transported merchandise to the value of between \$25,000,000 and \$30,000,000; in the second year, about \$38,000,000; in the fiscal year 1909, about \$51,500,000, of which some \$24,500,000 was eastbound and \$27,000,000 westbound; in 1910, about \$69,000,000, \$28,000,000 eastbound and \$41,000,000 westbound. Of the eastward movement, about \$20,000,000 consisted of sugar shipped from Hawaii chiefly to the New York and Philadelphia refineries. The railway was built on the theory that by getting a start of the Panama Canal, by construction which reduced the unit cost of transportation to a minimum, by the use of mechanical facilities in handling freight at terminals from vessel to car, and by the establishment of regular and ample shipping connections, neither the canal nor the more northerly transcontinental lines could successfully undercut rates between the east and west seaboard.

Federal telegraph lines in 1908, 39,865 miles, with 501 offices; in 1909, 42,750 miles. Post-offices, June 30, 1910, 2843.

**FINANCE.** The monetary unit is the silver dollar, or peso, worth 49.8 cents. Ordinary revenue and expenditure (estimates for 1911) for year ending June 30, in thousands of Mexican dollars:

	1907	1908	1909	1911
Rev.....	114,286	111,772	98,776	107,918
Exp.....	85,077	93,177	92,967	102,294

In 1908-9, the larger sources of revenue were: Import duties, 38.41 per cent.; interior taxes payable throughout the republic, 32.37;

interior taxes payable in the territories and the Federal District, 12.03; public service, 6.36. The larger items of expenditure, with estimates for 1910-11, are: Public debt and finance, 35,472,168 dollars; army and navy 21,117,175; communications, 15,611,770; interior, 15,219,839; public instruction, 6,970,057. On June 30, 1910, the debt stood: External, 304,078,558 dollars; internal, 138,889,108; non-consolidated, 368,679; total, 443,336,345; total charges, 21,171,356. Chartered banks in the republic, June 30, 1909, 32, of which 24 were banks of issue.

**ARMY.** An increase in the military establishment and a reorganization of the army was in progress during 1910 and that it was necessary was shown by the events of the latter part of the year. On a peace basis the army consisted of 3500 officers and 31,000 men recruited by voluntary enlistment for a term of 5 years. The object of the reorganization was to provide a force that on mobilization would give a strength of about 7000 officers and 186,000 men, and in case of need could be increased to 250,000. The national army as organized on a peace footing consisted of 30 battalions and 2 skeleton battalions of infantry, 14 regiments and 4 half-regiments of cavalry, 8 field batteries, 4 mountain batteries, 4 horse batteries, 1 machine gun company, and 1 squadron of quick-firing guns of small calibre. In addition Mexico established works for the manufacture of munitions of war. There is a factory for cartridge manufacture at Tacubaya with new machinery and the national powder manufactory at Chapultepec has been increased. The new automatic rifle was being manufactured at Neuhausen in Switzerland; it is known as the "Porfirio Diaz" and is on the mondragon system. It was the first automatic rifle regularly to be adopted by a National Army.

**NAVY.** The navy includes one unprotected cruiser, of 1220 tons, nine gunboats, and five torpedo boats. Six cruisers are said to be projected.

**GOVERNMENT.** Mexico is a federal republic, in which the chief executive authority rests with a president who is elected by indirect vote for six years and is assisted by a cabinet of eight members. The legislative power is vested in a congress of two houses, the Senate (56 members, elected for four years) and the Chamber of Deputies (one for every 40,000 inhabitants, elected for two years). The President in 1910 was General Porfirio Diaz. He became President first in 1877, his assumption of the chief executive office marking the culmination of successful revolutionary movements. He was succeeded in 1880 by Gen. Manuel González, who in turn was succeeded by Diaz in 1884. Diaz was re-elected in 1888 and subsequently for four-year terms until 1904, when he was elected for the six-year term ending November 30, 1910. In the latter year he was again elected for six years, and on December 1, when an insurrectionary movement was in progress, he was inaugurated for his eighth term. Diaz was born in 1830. The Vice-President in 1910 (re-elected for the term ending November 30, 1916) was Ramón Corral. The states have their own elected governors and legislatures. The territories are administered by governors and the Federal District by three officials, all appointed by the President.

**HISTORY.** President Diaz, now in his 80th

year, was chosen President again on July 26, and Ramón Corral Vice-President. The Opposition candidate, Dr. Madero was in prison at the time of the elections. Mexico began the celebration of the anniversary of her independence on September 1, 1910, with a programme of festivities which lasted through a month. A special envoy was sent from the President of the United States and also a Commission representing that country. The features of the celebration were fête days on September 15, 16 and 19, with an imposing pageant, a sham battle on September 25, under the direction of the Secretary of War, and the dedication of a new million dollar palace at Chihuahua.

After the elections Francisco Madero was released from prison (October 7) under the requirement that he should remain in Mexico, but he fled to Texas in disguise. A revolution was started by Madero and his followers in November and spread to several provinces. On November 18 the revolutionists were attacked at Puebla, where the police attempted to break up a mass-meeting of protest against the election of Diaz. A fight followed in which some 25 persons were killed. On November 19, Madero, who had been in San Antonio, Texas, left that city, and at the same time a number of Mexicans staying in Texas took up arms and crossed the border. The chief scene of revolutionary activity at first was the northern part of the state of Chihuahua, where a majority of the people were hostile to the government. On December 6 the insurgents captured Guerrero, but were driven out by the government three days later. There were conflicting reports of the insurrection. At the close of the year the government was said to have it well in hand, but the reports in the press continued to represent the situation as very serious. Early in November there were a number of student demonstrations against Americans in Mexico City. A lynching at Rock Springs, Texas, of a Mexican for murder was said to be the cause of these uprisings, which took the form of throwing stones at the windows of American business houses and attempts to attack Americans. Frequent reports have been made in recent years, pointing to the great unpopularity of the Americans among certain classes in Mexico, especially the students. See UNITED STATES, *Foreign Relations*.

**MEYDUM, EXCAVATIONS AT.** See *ARCHAEOLOGY*.

**MEYER, GEORGE VON L.** See *UNITED STATES, Navy and Cabinet*

**MICHAELIS, ADOLF.** A German archaeologist, died in August, 1910. He was born in 1835 at Kiel and studied at the university of his native town and in Berlin and Leipzig. After 1862 he was professor of classical philology and archaeology at Griefswald, Tübingen, and Strassburg. In 1874 he became a member of the German Central Archaeological Institute in Rome, the history of which he published in 1879. His best known work is a critical edition of Tacitus's *Dialogues and Orations*. He published many archaeological treatises, including one on *The Parthenon* (1871), and *Ancient Marbles in Great Britain*, translated in 1882. He also prepared the 6th edition of Springer's *Handbuch der Kunstgeschichte* (1901).

**MICHELIN CUP.** See *AERONAUTICS*.

**MICHIGAN.** One of the North Central Divi-

sion of the United States. It has an area of 57,980 square miles. Its capital is Lansing.

**POPULATION.** The population in 1910, according to the Thirteenth Census, was 2,810,173 as compared with 2,420,982 in 1900 and 2,093,890 in 1890. The increase in the decade 1900 to 1910 was 16.1 per cent. The State ranks eighth among the States in point of population, whereas in 1900 it ranked ninth. The population of the larger cities and towns will be found in the tables in the articles UNITED STATES CENSUS.

**MINERAL PRODUCTION.** Michigan is notable for the large quantities of iron and copper produced in its mines. The chief ranges from which these are produced are the Marquette, Menominee, and the Gogebic, the last of which, however, are partly in Wisconsin. The total production from these ranges was 13,219,614 long tons, which was a great increase over the product of 1908, which was 8,839,199 long tons. The Marquette range is the oldest of the Lake Superior ranges. In the production of copper, Michigan ranks third, being surpassed only by Arizona and Montana. The production in 1909 was 227,005,923 pounds, a slight increase over the production of 1908, which was 222,289,584 pounds. The United States Geological Survey estimates a production of about 220,000,000 pounds in 1910. The important developments of the year were those carried on at the lake and neighboring properties. Though these developments by no means realized the expectations held at the beginning of the year they still indicate the possibility that important deposits may be found in this region. The coal production of the State in 1909 was 1,783,692 tons as compared with 1,835,019 in 1908. The output in 1910 was about the same as in 1909, with possibly a slight increase. The mines working under an agreement with the United Mine Workers of America were shut down from April 1 to June 1, but the increased activity both prior to and following the suspension brought the total production up to the normal. At the close of 1910 the coal mining industry of the State was in a more satisfactory condition than was reported in most of the other States. In the production of Portland cement, the State takes an important place. There were produced in 1909 3,212,653 barrels valued at \$2,620,089 as compared with 2,892,576 barrels valued at \$2,556,215 in 1908. Salt is produced in large quantities and the State holds first place in the production of this commodity. The clay products are of great value, and among other minerals produced are graphite, asbestos, stone, and gypsum.

**AGRICULTURE.** The acreage, production, and value of the principal crops in 1909-10 are shown in the following table:

	Acreage	Prod bus.	Value
Corn, 1910.....	2,100,000	68,040,000	\$36,061,000
1909.....	1,976,000	69,950,000	42,670,000
Winter wheat '10	889,000	15,642,000	13,921,000
'09.....	775,000	14,670,000	16,318,000
Oats, 1910.....	1,505,000	51,170,000	17,910,000
1909.....	1,420,000	43,310,000	17,757,000
Barley, 1910.....	67,000	1,742,000	1,010,000
1909.....	67,000	1,655,000	1,010,000
Rye, 1910.....	350,000	5,355,000	13,641,000
1909.....	550,000	5,425,000	3,743,000
Buckwheat, 1910	55,000	842,000	522,000
1909.....	58,000	829,000	547,000
Potatoes, 1910..	335,000	35,175,000	10,904,000
1909.....	348,000	36,540,000	12,789,000
Hay, 1910.....	2,592,000	3,370,000a	45,832,000
1909.....	2,618,000	3,403,000	38,794,000

a Tons

**FINANCE.** The report of the State treasurer for the fiscal year ended July 1, 1910, showed a balance on hand July 1, 1909, of \$1,613,967. The total receipts during the year were \$13,412,149 and the total disbursements \$12,538,233, leaving a balance on hand June 30, 1910, of \$2,487,883. The chief disbursements were for education, the maintenance of State institutions and the expense of the State government.

**CHARITIES AND CORRECTIONS.** The charitable and correctional institutions of the State include the following: Michigan School for the Deaf, Flint; Michigan School for the Blind, Lansing; Michigan Employment Institution for the Blind, Saginaw; State Public School, Coldwater; Industrial School for Boys, Lansing; Industrial Home for Girls, Adrian; Michigan Soldiers' Home, Grand Rapids; Michigan Asylum for the Insane, Kalamazoo; Eastern Michigan Asylum, Pontiac; Northern Michigan Asylum, Traverse City; Upper Peninsula Hospital for the Insane, Newberry; Michigan Home for the Feeble-Minded and Epileptic, Lapeer; State Asylum, Ionia; Michigan State Prison, Jackson; State House of Correction and Branch of State Prison in U. P., Marquette; Michigan Reformatory, Ionia; Detroit House of Correction, Detroit; State Sanatorium, Howell.

#### POLITICS AND GOVERNMENT

**ELECTIONS.** At local option elections in April the drys carried 10 additional counties, so that now 40 of the 84 counties in the State are dry. In the general campaign in the fall Chase S. Osborn, Republican, on a distinctly progressive platform, was nominated at the primaries for governor over two other candidates, by 40,000 plurality, and was elected in November by a majority of 43,033. For the first time candidates for United States Senator were nominated at primaries. For the Republican nomination two entered, Senator Julius C. Burrows, stand-patter, who had been three times elected, and Charles E. Townsend, progressive, member of Congress for the Second District. Each signed an agreement to abide by the result of the primary vote. Congressman Townsend was nominated by a majority approximating 45,000. The Republican majority of the new legislature then unanimously elected him on the first ballot.

**OTHER EVENTS.** On June 24 at Monroe, President Taft delivered the main address at the unveiling of an equestrian statue, erected by the State, of General George A. Custer, who was killed with his entire command of the Seventh United States Cavalry at the battle of Little Big Horn, Montana, by Sitting Bull's Sioux, in the summer of 1876. Monroe was the Custer home.

Two State officials were given penitentiary sentences. February 5 former State Treasurer Frank P. Gloziar was given an indeterminate sentence of five to ten years for embezzling State funds; and on May 2 Allan N. Armstrong was given one year and \$5000 fine for, as warden of the Jackson penitentiary, accepting a bribe from a prison contractor.

On May 23 the freight steamer *Frank H. Goodyear* was rammed and sunk on Lake Huron by the steamer *James B. Wood*, and 16 men and one woman, of the *Goodyear*, drowned. On September 9 the *Père Marquette* Railroad Company's car ferry, "No. 18," bound out from Ludington, went down in Lake Michi-

gan by the shifting of cars in a heavy sea, and 28 lives were lost. August 25 a rear-end collision of two Grand Trunk passenger trains occurred at night near Durand, and a sleeper caught fire. The killed and burned to death were 12. February 10 the explosion of a boiler at L. L. Princling and Son's saw mill, near Bay City, killed seven men. On November 12 a Michigan Central fast freight ran down a street car at night, at Kalamazoo, and the lives lost were 12.

Twice during the year the governor ordered detachments of the National Guard for active duty, once to protect railroad property, at Durand, during a strike of Grand Trunk Railway trainmen, and a second time to quarantine the State Home for Feeble-Minded, at Lapeer, where there was a smallpox epidemic.

Loyal E. Knappen, Federal Judge for the Western District of Michigan, was elevated to the next higher court by President Taft in January, and Arthur C. Dennison, of Grand Rapids, was appointed District Judge to succeed him.

**STATE OFFICERS.** Governor, Chase S. Osborn; Lieutenant-Governor, John Q. Ross; Secretary of State, Frederick C. Martindale; Treasurer, Al. E. Sleeper; Auditor, Oramell B. Fuller; Attorney-General, Franz C. Kuhn; Adjutant-General, \_\_\_\_\_; Superintendent of Education, Luther L. Wright; Commissioner of Insurance, M. O. Roland; Commissioner of State Land Office, Huntley Russell—all Republicans.

**JUDICIARY:** Supreme Court: Chief Justice, Russell C. Ostrander; Justices, John E. Bird, Joseph B. Moore, Aaron V. McAlvay, Chas. A. Blair, Frank A. Hooker, Flavius L. Brooke, John W. Stone; Clerk, Charles C. Hopkins—all Republicans.

**STATE LEGISLATURE, 1911.** Republicans, Senate, 29; House 87; joint ballot, 116; Democrats, Senate, 3; House, 13; joint ballot, 16; Republican majority, Senate, 26; House, 74 joint ballot, 100.

**MICHIGAN, UNIVERSITY OF.** An institution of higher learning at Ann Arbor, Mich., founded in 1837. The attendance in 1909-10 in the several departments of the university was 5383. The number of members of the faculty, not including assistants, was 292. The most notable change in the faculty during the year was the election of Dr. Harry B. Hutchins, for fifteen years dean of the department of law, to the presidency of the university to succeed James G. Angell, who retired in 1909. Dr. Angell was elected president emeritus. Professor Henry M. Bates, for several years a professor in the department of law, was elected dean of the law department. Professor Jesse S. Reeves, formerly of Dartmouth College, was appointed to the professorship of political science. During the year the university received as a gift from the late Arthur Hill of Saginaw, for many years a member of the board of regents of the university, \$200,000 for the purpose of building a university auditorium. The income of the university is derived almost entirely from the State and from the fees of students. It amounted in 1909-10 to \$1,024,170.

**MILITARY ACADEMY, UNITED STATES.** See UNITED STATES MILITARY ACADEMY.

**MILITARY AEROPLANES.** See MILITARY PROGRESS.

**MILITARY PROGRESS.** No military operations of importance, except annual manoeuvres, took place during the year; nevertheless the efficiency of the armies of the world increased greatly, and at the close of 1910, the preparations for war were much more extensive than at the beginning. The Spanish war in Morocco came to a close with results satisfactory to the Spaniards, and the tribes around Melilla expressed their allegiance and gave support to King Alfonso. In China the awakening brought the government to a realizing sense of the necessity for military preparations, and several schools, under German and Japanese officers, have been established. Besides, the Chinese availed themselves of the privilege granted by foreign nations to permit students to enter the great military schools of the world. No reliable report was made of the efficient strength of the Chinese army, but it was well known that the fighting strength was of no mean calibre. The Japanese army and the armies of Europe were maintained in the most efficient condition that their respective governments were capable of supporting.

**ITALIAN ARMY.** During 1909 important changes were in contemplation in the Italian service. On July 17, 1910, a general order was promulgated, inaugurating several innovations, the principal of which were: (1) The transformation of thirty-six companies of *bersaglieri* into twelve cyclist battalions. (2) Establishment of new remount depots for the cavalry and artillery. (3) Increase of the artillery by nine field batteries and twenty-four depot batteries. (4) Increase of the engineers by ten companies.

**INFANTRY. United States Army.** The United States army took the lead in the improvement of the pack for infantry soldiers. For over a year a board of officers had been carefully studying the problem, and their conclusions and recommendations were reported to the War Department in the autumn of 1910. The results were highly satisfactory to the service. The revision of the old method of carrying the load of the foot soldier was based on the principles that the ideal load should be as light as possible, a self-evident proposition; that it must contain all the articles essential to the soldier's purpose, health, and comfort; that the distribution of the load on the framework of the body should be such that the centre of gravity of the load and that of the body should coincide; that the weight should be transmitted to the medium of locomotion, the legs, with a minimum of effort and fatigue to the medium of transmission, the body; and that the load should be borne without interference with the vital organs and limbs. The full equipment as designed weighs 39 pounds, 1.53 ounces; the full equipment, less the pack (which consists of carrier, blanket, poncho, shelter tent half and pins), weighs 30 pounds, .33 ounces; the fighting equipment, without the pack, weighs 37 pounds, 13.24 ounces; and the latter with pack, 46 pounds, 14.44 ounces. The entire load is easily removed and may be quickly replaced; it is easy of adjustment to meet the requirements of the individual; it is simple of construction and easy to repair, and is sanitary.

**French and German Armies.** In the French and German armies the marching of the infantry was the marked feature of the year's manoeuvres,

and the improvement in this respect caused much favorable comment from foreign observers.

**Russian Army.** The Russian army has begun to recover from its reverses in the Japanese war, and was largely reorganized in the infantry arm. The Instructions for Infantry Combat issued in 1910 showed a marked advance over those of previous years. They state that infantry forms the principal strength of the army, and is assisted by the artillery in crushing the enemy, and that the infantry bears the brunt of the fight. Detailed directions are given for the advance, the attack, the disposition of troops, and all features of the tactical manœuvring. Like most of the advanced systems of the world, it is taken largely from the German.

**CAVALRY.** Military horsemanship received close attention from all cavalry services of the world. The French School of Equitation at Saumur has maintained a high standard of efficiency, and has been the model for other schools. International horse shows, notably at London and in New York, were attended by representatives detailed from the cavalry of the armies of the world, and the friendly rivalry excited by these contests did much to increase the efficiency of cavalry service everywhere. In France and Germany the remount depots were improving the quality of their horses, and in the United States the cavalry service endeavored to establish proper depots. Although great progress had not been made in the plans for bettering the horse flesh for the United States service, yet the necessity for further development was recognized, and it was expected that tangible results would follow soon. That the endurance of cavalry had not decreased was shown by the length of time spent in the saddle in the French manœuvres of this last autumn—at times as much as seven hours per day.

On account of the multiplicity of duties devolving on cavalry, stated the *Revue Militaire* for November, 1910, the instruction in equitation in the German service has undergone a change. All superfluous work is eliminated, and the instruction greatly simplified. This change was viewed with satisfaction by German officers. In the English service the discussion was still in progress concerning the value of the lance, the sabre, and the rifle. In a letter to the *Pall Mall Gazette* of April 6, 1910, Sir A. Conan Doyle entered the controversy. His conclusions were concurred in by most military men of Great Britain. The argument was advanced that it was useless to train a horseman in shock tactics and to make of him, at the same time, a mounted rifleman.

**FIELD ARTILLERY.** France adopted a very efficient howitzer of 155 millimetres (6.1 inches) calibre, to replace a former type, which was neither heavy enough nor of sufficient mobility. This new weapon slides in a cradle on discharge and is provided with the best of auxiliary devices, such as improved sights, a shield, and a spade for holding the gun in position during firing. On the march the gun is, for convenience, shifted to another position on the carriage. It is capable of firing five shots per minute, at maximum range of 5 kilometres (5470 yards). The projectile weighs 43 kilograms (94.6 pounds), and its explosion makes a hole in the ground 4 metres (13.1 feet) in diameter, and one metre (3.2 feet) deep. The radius of burst, or distance the fragments will be thrown

on bursting, is 80 metres (87.5 yards). Batteries have two of these guns each.

Austria-Hungary has a field howitzer using both shrapnel and high explosive shell, which is able to destroy ordinary field works at a maximum range of 5700 metres (6236 yards). Its mobility is sufficient to enable it to keep up with infantry.

Messrs. Krupp, for the German government, have brought out a siege howitzer weighing only 200 pounds, but capable of firing a shell of 185 pounds. The gun itself has no novel features, but the shell is a curious affair. It is not placed in the gun, but on the muzzle, and is propelled by a rod which projects from the shell and passes down the bore. With a charge of 6 ounces of smokeless powder the 185-pound shell carries 400 yards, with good accuracy. The rod, by a peculiar mechanism, drops out during the flight, leaving the shell, which is filled with high explosive, to complete the trajectory alone. The German service perfected a balloon gun firing a shell with sensitive fuse which ignites on the slight impact with the envelope of the balloon or wing of the aeroplane. Experiments for the purpose of devising a universal shell for field artillery were practically abandoned. It was impossible to get a projectile that would act equally well as shell or shrapnel. In July 1910, the government of the Netherlands changed two batteries of its field artillery by adopting rapid fire guns for them.

**COAST ARTILLERY.** In the contest between armor and projectiles the latter seemed to be in the lead at the close of 1910. At 6000 yards the best gun of the day, with armor piercing projectiles, could penetrate any armor that could be mounted on a ship. Thus there seemed to be no immediate necessity to increase the power of the gun. However, armor piercing was not the only problem confronting artillerists. The greatest damage is done to a ship by a heavy bursting charge, and since the larger the charge the greater the damage, an increase in the size of guns and a corresponding increase in the projectile was being considered. Some fourteen inch guns were constructed, but the practicability of this extreme calibre was much discussed. With electrical and other power for handling the gun and projectiles, the rate of fire has kept at a maximum as the guns increase in size. Both rate of fire and accuracy were greatly improved during the year. The English artillery used a shell-tracing device which proved efficient. A metal cylinder is screwed to the base of the shell, and carries a powerful illuminant. This is fired by the explosion and continues to burn brightly during the flight of the projectile. It is of great value in correcting ranges.

**AEROPLANES.** As a military auxiliary, flying machines of various types came rapidly to the front during the year. Aeroplanes proved their availability beyond doubt, though there were some problems of construction that were still unsolved and that prevented their military use to large extent. These problems, however, were in process of solution, and within a short time all of the armies of the world, it was believed, would be provided with these engines. The investigation of the question of flight progressed satisfactorily, and it was evident that only by scientific methods could this matter be settled to the point of making of this type of machine a valuable military asset.

The designing of aeroplanes was being gen-



NEW INFANTRY FIGHTING EQUIPMENT, UNITED STATES ARMY

342

erally approached from the viewpoints of support, resistance, propulsion, stability and control. Support is mathematically calculated, and as a corollary the question of "reefing" seems to be capable of solution. This will enable the machine to have at all times the same lifting power. Propulsion and resistance are discussed conjointly, and mathematical formulæ express these. Stability and control are also closely related. Devices have been invented to increase stability, but most of the machines still leave the greater part of this problem to the dexterity of the aviator. The gyroscopic principle has been suggested as the final solution. As a result of this instability, the aeroplane as developed at the end of the year hardly was capable of being used as an engine of destruction. Its present use must therefore be limited to the work of communication and reconnaissance. For communication one person suffices, but for reconnaissance two are really necessary, one as aviator, and the other to do the observation work.

The French by the autumn of 1910 had a fleet of 60 aeroplanes, composed principally of Blériot monoplanes, and Farman and Wright biplanes. The specifications for the latest machines of the year provided that they should carry at least 660 pounds, and be able to cover 186 miles at one flight, at a minimum speed of 37 miles an hour. Prizes are to be given by the government in 1911 to the constructors who showed the greatest development. General Roques was appointed in full charge of the aeronautic service and to decide all questions.

**DIRIGIBLE BALLOONS.** Although Germany had developed the military dirigible more extensively than any other nation, yet accident after accident occurred to the German airships, without much corresponding increase in efficiency from experience. Both France and Germany established airship "ports," and, so long as their vessels were free from accidents, their radius of action was great, and the "ports" have afforded harbors for refuge and for repairs. The French government ordered eleven new dirigibles of different dimensions, whose delivery was to take place at various times during the year 1911. The speeds were to vary from 30 to 32½ miles per hour. They were to be equipped with wireless telegraphy, but, for safety, the specifications required that no metal of any kind should come within 6½ feet of the gas bag. For reconnaissance work the dirigible had thus far proven superior to the aeroplane, due to the fact that it was able to fly at slow speed, did not require the constant attention of the pilot, and if necessary could carry a number of persons, who might devote themselves to various duties connected with reconnaissance.

**LIGHTING AIRSHIP ROUTES.** Lighthouses for airships by 1910 seemed to have become a necessity. Germany, to provide the security demanded by her air fleet service, initiated a corresponding lighthouse service. During the manoeuvres of 1909 it was found that airships had considerable trouble in finding their landing places. Foggy weather made it particularly dangerous. Towers equipped with searchlights were utilized as landmarks and proved efficient except in very thick weather. To overcome this difficulty a system of captive rubber balloons of different colors, lighted internally by electricity, was devised. These could be seen at long distances. Certain signalling devices were used also in conjunction with them.

**MOTOR TRANSPORTATION.** Experiments were conducted in October, in Canada, which proved beyond doubt that motor transportation applied to military purposes is extremely valuable, and that the recent advances in motor vehicle construction have placed these vehicles in condition to be available for the roughest kind of military uses. The tests showed that, in all kinds of weather, on every kind of road, the loads carried exceeded by far anything that could be handled by animal power. In Germany the application of motors to military use progressed steadily, as was also the case in France. These efficient military nations have been in the forefront in the application of motor power, and their continued increase of the use of self-propelled vehicles confirms the experiments carried on in Canada.

**MANŒUVRES.** The great manoeuvres of the year took place in the autumn in France and in Germany. The Japanese army also had extensive manoeuvres, but these were not open to the observations of foreign officers as were those of France and Germany. All of these exercises took the usual severe form, and the principal features commented on by foreign observers at both the French and German manoeuvre fields were the marching abilities of the infantry and the new developments in the service of information and communication. It was officially announced that the organizations to participate in the German manoeuvres for 1911 would be the Guard Corps, the Second Corps (Stettin), and the Ninth Corps (Altona). For these manoeuvres the battalions of foot troops were to be raised to 700 men, by the calling of reserves. See articles on foreign countries, paragraphs on Army.

**MILITIA.** As the result of acts of Congress passed in 1908 the militia of the various States is divided into two classes, the Organized Militia, known as the National Guard of the State, Territory, or District of Columbia, or by some similar designation, and the remainder, known as the Reserve Militia. The Organized Militia is composed of the regular enlisted organized and active militia in the several States and Territories and the District of Columbia. Since January 1, 1910, the organization, armament and discipline of the Organized Militia in the several States, Territories, and the District of Columbia have been the same as those prescribed for the regular army of the United States, subject to certain conditions.

The strength of the organized militia in October, 1910, was 110,505 men and 9155 officers as compared with 109,951 men and 8975 officers in 1909. The strength of the organized militia in the States, Territories and District of Columbia will be found in the table at the top of the next page.

**NATIONAL RESERVE.** Plans have been under consideration for several years to bring into actual practical operation the plan of an efficient national reserve to act in coöperation with the regular army and the organized militia in time of emergency. Among the suggestions made by the Division of Militia Affairs in its annual report for 1910 is the following: The regular army of the United States might be considered as divided into two branches, an active branch kept constantly mobilized and filled to the limit now authorized by law and the national reserve, to consist of a body of citizen soldiery supple-

State or Territory	1909		1910	
	Officers	Enlisted men	Officers	Enlisted men
Alabama	221	3,093	216	3,011
Arizona	43	588	56	692
Arkansas	129	1,827	139	1,426
California	192	2,348	205	2,789
Colorado	71	774	97	1,063
Connecticut	186	2,677	184	2,398
Delaware	40	361	42	337
District of Columbia	136	1,329	120	1,525
Florida	101	1,241	97	1,125
Georgia	239	2,794	222	2,695
Hawaii	49	557	47	561
Idaho	59	592	62	642
Illinois	520	6,165	507	5,828
Indiana	198	2,293	179	2,061
Iowa	216	2,523	218	2,984
Kansas	129	1,383	134	1,539
Kentucky	169	1,941	161	1,956
Louisiana	111	1,248	125	1,670
Maine	107	1,221	108	1,253
Maryland	157	1,911	160	1,878
Massachusetts	443	5,538	444	5,404
Michigan	204	2,578	206	2,510
Minnesota	201	2,747	204	2,545
Mississippi	127	1,325	135	1,372
Missouri	223	3,217	258	2,675
Montana	40	501	54	694
Nebraska	102	990	126	1,021
Nevada				
New Hampshire	131	1,545	92	1,184
New Jersey	369	4,116	362	3,783
New Mexico	27	181	57	887
New York	981	14,503	992	14,244
North Carolina	215	1,903	237	2,083
North Dakota	64	663	65	683
Ohio	495	5,511	505	5,095
Oklahoma	56	938	59	901
Oregon	112	1,457	104	1,416
Pennsylvania	732	9,776	738	9,683
Rhode Island	110	1,041	107	1,027
South Carolina	180	1,751	184	1,772
South Dakota	73	707	80	714
Tennessee	122	1,400	125	1,515
Texas	216	2,378	216	2,513
Utah	47	359	40	330
Vermont	63	767	62	769
Virginia	170	2,222	189	2,231
Washington	54	969	88	1,242
West Virginia	116	1,194	98	1,346
Wisconsin	198	2,898	197	2,836
Wyoming	41	408	52	598
Total	8,975	109,951	9,155	110,505

a No organized militia (mustered out May 20, 1906)

menting the active army, and constituting in time of peace a body that would receive trained soldiers, both commissioned and enlisted from the active regular army and one side and from the organized militia on the other. It would serve as a body to receive all who had had military training in the regular army and organized militia, but who, while wishing to give up actual training would desire to make themselves available for military service in time of national danger. It is believed that such a body would attract to the organized militia a personnel that is not now influenced to enter its ranks and that would tend to increase the military spirit throughout the whole United States. It is suggested that this force consist of 100,000 men to be added in time of war to the regular army of 100,000 men and the organized militia of 200,000.

**FIELD ARMY.** In 1910 the first definite step toward combining the organized militia with the regular army in a tactical way in time of peace, for mobilization for field service operations in time of war, was taken. General orders were issued on February 28, 1910, giving the details of the proposed organization. By this order seventeen divisions were organized, with all the elements which should go to constitute a military division, including infantry, field artillery, cavalry, engineers, signal troops, sanitary troops,

and supply service. The first division includes the organized militia bodies from Maine, New Hampshire, Vermont, and New York, together with certain portions from the regular army of the United States; the second division includes the organized militia of New York State, with certain United States troops; the third division includes the organized militia of New York, Massachusetts, Connecticut, and Rhode Island; the fourth division includes the organized militia of New Jersey and Eastern Pennsylvania; the fifth division includes the organized militia of Pennsylvania; the sixth division, which has a separate regiment of infantry, includes the organized militia of Pennsylvania, West Virginia, Maryland, Delaware, and the District of Columbia; the seventh division includes the organized militia of Virginia and North and South Carolina; the eighth division includes the organized militia of Georgia, Florida, and Alabama; the ninth division includes the organized militia of Mississippi, Louisiana, and Texas; the tenth division includes the organized militia of Kentucky, Tennessee, and Arkansas; the eleventh division includes the organized militia of Ohio; the twelfth division includes the organized militia of Indiana, Michigan, and Wisconsin; the thirteenth division includes the organized militia of Illinois; the fourteenth division includes the organized militia of Iowa, Minnesota, North Dakota, and South Dakota; the fifteenth division includes the organized militia of Missouri, Nebraska, Kansas, and Oklahoma; the sixteenth division includes the organized militia of Montana, Wyoming, Idaho, Colorado, and Utah; the seventeenth division includes the organized militia of Washington, California, New Mexico, and Arizona. In all these divisions are included bodies of the regular United States army in its various branches.

**MILK.** See AGRICULTURE; DAIRYING.

**MILLARD, B.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**MILLER, B.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**MILLER, H. R.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**MILLER, HENRY.** See DRAMA.

**MILLS, DARIUS OGDEN.** An American financier and philanthropist, died January 3, 1910. He was born at North Salem, N. Y., in 1825 and derived his education from academies at that place and at Ossining. When he was fifteen years of age family necessities required that he leave school and begin work. He became clerk in a country store, spending six years in this position, after which he went for a short time to New York and afterwards to Buffalo, where he became cashier of the Merchants' Bank of Erie county. He later acquired an interest in that institution. Stories of the gold finds in California were the chief topic of conversation at this time, and two of Mr. Mills's brothers went to the gold fields. He himself soon followed and opened a general store and Eastern exchange at Sacramento. This was immediately successful and in the first year he is said to have made \$40,000. His business was carried on by regular methods and not by speculation. His purchases were made in New York and carried around the Horn in a sailing ship and immense profits were made on the money invested. Mr. Mills next founded the Gold Bank of D. O. Mills & Co., of Sacra-

mento, which is the oldest banking house in California and remained under his control during the rest of his life. He made a trip abroad and returned in time to take up the development of the famous Comstock lode in Nevada. He acquired most of the lands in that neighborhood, great tracts of valuable timber lands, and the only railroad running to them, and bought further large interests in the principal quick-silver mines of the State. His wealth increased rapidly and in 1864 he assisted in the organization of the Bank of California in San Francisco, which became a successful institution under his management as president. Under his successor, however, it failed in a sensational crash. Mr. Mills succeeded in re-establishing the bank and served several years as its president without pay. In 1880 he removed his business headquarters to New York City, where he bought land in Broad Street where the Mills Building now stands and erected that building. He erected a similar building in San Francisco. Mr. Mills took great interest in philanthropic objects. His most notable performance in this direction was the erection of three Mills hotels in New York City, designed for the benefit of poor but self-respecting men. Good accommodations at cheap rates are provided in these hotels, and they proved to be not only self-sustaining but excellent financial investments. Mr. Mills was at one time regent and treasurer of the University of California, where he endowed a chair of philosophy. He also acted as trustee of the Lick estate and Observatory, and sent an expedition to Chile to make observations of stars not visible in the Northern Hemisphere. He was trustee of many prominent institutions in New York City, including the Metropolitan Museum of Art, the American Museum of Natural History and the American Geographical Society. He was also president of the New York Botanical Gardens. His financial interests included directorships in the Erie, New York Central and other railroads, of the Bank of New York, the Morgan Trust Company, and others. Estimates of his fortune at the time of his death vary from \$60,000,000 to \$100,000,000.

**MILWAUKEE.** See WISCONSIN and GARBAGE AND REFUSE DISPOSAL.

**MINCHIN, H. C.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**MINERALOGY.** This article is devoted especially to a review of the progress of mineralogical science during 1910, with mention of any interesting discoveries of minerals which are not sufficiently important to be treated under separate heads. The usual activity in investigation has been manifest during the year, and several new mineral species have been described for the first time.

The manufacture of precious stones by synthetic processes is a recent development to which attention has been called in previous volumes of the YEAR BOOK. It would now appear that sapphires, which are physically and chemically identical with the natural stones, can be made on a commercial scale. The crystals are obtained by fusion of alumina in the oxygen-hydrogen furnace, in a manner similar to that followed with synthetic rubies. The desired tint of blue is secured by the addition of iron and titanite oxide in small amount. The successful duplication of these rare gems will

doubtless disturb the mining industry and trade based on the natural product.

The existence of a monoclinic dimorphous form of albite, isomorphous with orthoclase, has generally been assumed by mineralogists, although the species was not known to occur in anything like a pure state. A feldspar from Kragerø, Norway, recently described by Barbier and Prost, gave on analysis as little as one per cent. of potash and showed a cleavage close to a right angle. The optical properties differed from those of albite, so that its identity with monoclinic soda orthoclase seems established. The mineral was given the name *barbierite*.

The mineral *podolite*, described in 1907 as an independent species, was identified by W. T. Schaller with the species *dahlite* which was determined by Brögger and Bäckström in 1888. The identity was established by chemical analysis. The name *dahlite* should therefore be retained and *podolite* removed from the list of minerals. Schaller also found that *stolznerite* and *antlerite* were similar and not independent species. *Antlerite* has priority of name, but the true composition is that found for *stolznerite*, which has one molecule of copper sulphate to two of copper hydrate.

**NEW MINERALS.** A list of the minerals described for the first time in 1910 follows: *Anophorite* is an alkaline amphibole from the igneous rocks of Katzenbuckel, Baden. *Bityite* is a hydrated silicate of calcium and aluminium, occurring in hexagonal plates of yellowish-white color. The type locality is Mt. Bity, Madagascar, where the mineral is found in pegmatite veins. *Brugnatellite*, a hydrate and carbonate of ferric iron and magnesium, is from Val Malenco, Italy. It forms lamellar aggregates of micaceous aspect, pearly lustre and flesh-red color. *Hallerite* belongs to the mica family, near *paragonite* in composition, and occurs in pegmatite at Mesvrea, Autunois. *Joaquinite*, a titano-silicate of calcium and iron, forms small honey-yellow crystals of orthorhombic habit. *Moscovite* belongs to the group of new mercury minerals from Terlingua, Texas. It is found in yellow octahedra of adamantine lustre that are doubly refracting at ordinary temperatures but become isotropic when heated. It resembles *kleinite* in chemical composition. *Mingucite* is a hydrated iron silicate, intermediate between *stilonmelane* and *lepidomelane*, occurring in greenish masses made up of small plates. The plates are opaque except when very thin and are optically negative. It is found in a mine in the Segré region, France. *Plancheite* is a hydrous copper silicate from Mindouli, French Congo; it forms masses of blue color. *Samsonite*, a sulph-antimonite of silver and manganese, is a monoclinic mineral from the Andreasberg silver mines, Saxony. *Risörite* is a niobate of yttrium, cerium and other rare elements, found in pegmatite at Risör, Norway. *Rosasite* is a mixed carbonate of copper and zinc, forming fibrous masses of green or blue color. It comes from the zinc mines of Sardinia. *Stellerite* belongs to the zeolite group of minerals, being a hydrated silicate of lime and alumina, allied to *heulandite* and *stilbite*. It is found in the Commander Islands in Behring Sea. *Turanite* and *alaite* are two new vanadium minerals from the foothills of the Akai mountains. The former contains copper as well as vanadium. *Vashegyite*, a basic aluminium phosphate, comes from the iron mines at Vashegy, Hungary, where it occurs in

dense white masses that resemble meerschaum. *Wiltshireite*, supposedly a sulph-arsenite of lead, is a monoclinic prismatic mineral from the Bin-nenthal, Switzerland. It has a tin-white color.

**MINERAL PRODUCTION.** The tables on pages 465 and 466, prepared by the United State Geological Survey, give the quantity and value of the mineral product of the United States in the years 1908-9. A more detailed discussion of the production and value of the individual products will be found under their different heads in alphabetical order as GOLD, SILVER, COPPER, COAL, PETROLEUM, etc. As will be seen from this table the value of the mineral product of 1909 was considerably greater than in 1908. In tables 2 and 3 is given the production of mineral and chemical substances and metals in the United States in 1909-10, according to statistics gathered by the *Engineering and Mining Journal*. See also paragraphs in articles on countries and on States of the United States.

**MINERALS.** See MINERALOGY.

**MINES,** UNITED STATES BUREAU OF. See UNITED STATES.

**MINGUETITE.** See MINERALOGY.

**MINIMUM TARIFF.** See TARIFF.

**MINIMUM WAGE BOARDS.** See LABOR LEGISLATION, Great Britain.

**MINING.** See paragraphs on the subject in articles on countries and on States of the United States.

**MINING CONGRESS, AMERICAN.** See COAL.

**MINNESOTA.** One of the North Central Division of the United States. It has an area of 84,682 square miles. Its capital is St. Paul.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 2,075,708 as compared with 1,751,394 in 1900 and 1,310,283 in 1890. The increase in the population in the decade 1900 to 1910 was 18.5 per cent. The State ranks nineteenth in point of population, the same relative rank which it held in 1900. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** The chief mineral product of the State is iron ore, and in this it ranks first in point of production and value. The chief source of production is the Mesabi range, from which were produced in 1909 28,176,281 long tons. From the other important range, the Vermilion, were produced 1,108,215 long tons, making a total production of 29,284,496 tons as compared with a production of 18,098,894 tons in 1908. The Mesabi range since its opening in 1892 has shown a steady increase in production. This has resulted from the continued activity of the iron deposits and from the extension of the operation of the ore fields beyond the Mississippi River. The State produces no coal, but the clay products are of considerable value, and other important mineral products are sand and mineral water.

**FINANCE.** The report of the State treasurer for the fiscal year ending July 31, 1910, showed a balance in the treasury on August 1, 1909, of \$2,733,250. The receipts from all sources for the fiscal year were \$14,810,944, making a total of \$17,584,194. The disbursements for the same period were \$13,322,963, leaving a balance in the treasury July 31, 1910, of \$4,261,231. The chief receipts were from railroad companies, State treasurers and from State institutions.

The chief disbursements were for education, for the support of State institutions and for the State government.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909-10 are shown in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910...	1,724,000	56,375,000	\$ 25,369,000
1909...	1,690,000	58,812,000	28,818,000
Spr' wheat, '10	5,880,000	94,080,000	88,435,000
'09	5,600,000	94,080,000	90,317,000
Oats, 1910...	2,736,000	78,523,000	25,127,000
1909...	2,736,000	90,280,000	31,600,000
Rye, 1910...	115,000	1,955,000	1,251,000
1909...	120,000	1,280,000	1,368,000
Barley, 1910...	1,285,000	26,985,000	16,191,000
1909...	1,399,000	31,600,000	14,852,000
Flaxseed, 1910	472,000	3,540,000	8,142,000
1909	450,000	4,500,000	6,750,000
Potatoes, 1910	165,000	10,065,000	6,442,000
1909	160,000	18,400,000	6,440,000
Hay, 1910...	908,000	908,000a	8,263,000
1909...	927,000	1,622,000	9,732,000

a Tons.

**CHARITIES AND CORRECTIONS.** The charitable and correctional institutions under the control of the State, with the appropriations for their support in 1910, were as follows: First State Asylum at Anoka, \$113,502; Second State Asylum at Hastings, \$118,379; the Fergus Falls State Hospital, \$309,576; the Rochester State Hospital, \$222,482; the St. Peter's State Hospital, \$234,887; School for the Blind, \$37,616; School for the Deaf, \$148,703; School for the Feeble-minded, \$403,991; State Public School, \$84,319; State Training School, \$82,170; State Reformatory, \$128,315; State Prison, \$42,295; State Sanatorium for Consumptives, \$106,500; Hospital for Crippled and Deformed Children, \$22,000; Industrial School for Girls, \$125,000. The total expenditures in 1909-10 for the maintenance of these institutions was \$1,447,253. At most of these institutions buildings were constructed or improvements made during the year.

## POLITICS AND GOVERNMENT

There was no session of the legislature in Minnesota in 1910, as the sessions are biennial and the next begins January 1, 1911.

**CONVENTIONS AND ELECTIONS.** The political situation in Minnesota in 1910 was much the same as in other northwestern and western States. The chief point of interest lay in the relative strength of the progressive and regular wings of the Republican party. Minnesota is normally a Republican State, although for three successive terms a Democratic governor has been elected. This was largely, however, on account of the powerful personality of John A. Johnson, who carried the State by large majorities, while Republican candidates on tickets opposed to him were elected. The present governor, Adolph O. Eberhart, is a Republican.

The Republican State Convention was held at St. Paul on June 21. The delegates were sharply divided between progressives and regulars, and there was a contest between them as to the constitution of the platform which the convention would endorse. The regular wing proposed to endorse the Taft Administration, touching lightly upon the Payne tariff bill, and advocating a tariff commission and railroad legislation, confining the rest of the platform to State topics. The insurgents demanded a plank repudiating

**MINERAL PRODUCTS OF THE UNITED STATES**  
*From Mineral Resources of the United States*  
**CALENDAR YEARS 1908 AND 1909.**

Products	1908.		1909.	
	Quantity	Value	Quantity	Value
<b>METALS.</b>				
Pig iron (a) (spot value b) long tons c	15,936,018	\$254,321,000	25,795,471	\$419,175,000
Silver, commercial value d..... troy ounces..	52,440,800	28,050,600	54,721,500	28,455,200
Gold, coining value e..... do.....	4,574,340	94,560,000	4,821,701	99,673,400
Copper, value at New York City..... pounds.	942,570,721	124,419,335	1,092,951,624	142,083,711
Lead f, value at New York City..... short tons...	310,762	26,104,008	354,188	30,460,168
Zinc f, value at St. Louis..... do.....	190,749	17,930,406	230,225	24,864,300
Quicksilver, spot value..... flasks g.....	19,752	824,146	21,075	888,710
Aluminum..... pounds.....	411,152,000	2,434,600	434,210,000	6,575,000
Antimony..... short tons.....	.....	1,264,771	.....	1,231,019
Antimonial lead..... do.....	13,629	(v)	12,896	(v)
Nickel f, value at Philadelphia..... pounds.....	.....	(k)	.....	4,832
Tin..... do.....	750	14,250	638	15,950
Platinum, value at New York City..... troy ounces..	.....	549,923,116	.....	753,427,290
Total value of metallic products.....	.....	.....	.....	.....
<b>Non-metals (Spot Values b).</b>				
<b>Fuels:</b>				
Bituminous coal..... short tons.....	332,573,944	374,135,268	379,744,257	405,486,777
Pennsylvania anthracite..... long tons.....	74,347,102	158,178,849	72,374,249	149,415,847
Natural gas.....	.....	54,640,374	.....	63,206,941
Petroleum..... barrels m.....	178,527,355	129,079,184	182,134,274	128,248,783
Peat.....	.....	133,000	.....	174,269
<b>Structural Materials:</b>				
Clay products n.....	.....	133,197,762	.....	166,321,213
Cement..... barrels o.....	52,910,925	44,477,653	65,399,889	52,797,973
Lime..... short tons.....	2,766,873	11,091,186	3,465,510	13,786,269
Sand, molding, building etc., and gravel, short tons	36,122,491	12,135,433	58,461,100	17,173,615
Sand-lime brick.....	.....	1,029,699	.....	1,150,580
Slate.....	.....	6,316,817	.....	5,441,418
Stone p.....	.....	65,712,499	.....	71,345,199
<b>Abrasive Materials</b>				
Corundum and emery..... short tons.....	669	8,745	1,580	18,185
Abrasive quartz and feldspar..... do.....	(q)	.....	(q)	.....
Garnet for abrasive purposes..... do.....	1,996	64,620	2,972	102,315
Grindstones.....	.....	536,095	.....	804,051
Infusorial earth and tripoli..... short tons.....	.....	97,442	.....	122,348
Millstones.....	.....	31,420	.....	35,393
Oilstones, etc.....	.....	217,284	.....	214,019
Pumice..... short tons.....	10,569	39,287	15,103	33,439
<b>Chemical Materials:</b>				
Arsenious oxide..... pounds.....	.....	(v)	2,428,000	52,946
Borax..... Crude, short tons.....	25,000	975,000	Crude, short tons.....	1,534,365
Bromine..... do.....	1,055,636	102,344	728,875	92,735
Fluorspar..... short tons.....	38,795	225,998	50,742	291,747
Gypsum..... do.....	1,721,829	4,075,824	2,252,785	5,906,738
Lithium minerals..... do.....	203	1,550	.....	(v)
Marls..... do.....	8,469	4,330	21,814	45,053
Phosphate rock..... long tons.....	2,386,138	11,399,124	2,330,152	10,772,120
Pyrite..... do.....	222,598	857,113	247,070	1,028,157
Sulphur..... short tons.....	339,444	6,668,215	239,312	4,432,066
Salt..... barrels s.....	28,822,062	7,553,632	30,117,646	8,343,831
<b>Pigments:</b>				
Barytes (crude)..... short tons.....	38,527	120,442	58,377	198,561
Cobalt (oxide)..... pounds.....	.....	(v)	.....	(v)
Mineral paints f..... short tons.....	68,694	2,410,367	79,888	2,419,710
Zinc oxide..... do.....	56,292	5,072,460	68,974	6,156,755
<b>Miscellaneous:</b>				
Asbestos..... short tons.....	936	19,624	3,085	62,603
Asphalt..... do.....	185,382	1,888,881	208,655	1,938,273
Bauxite..... long tons.....	52,167	263,968	129,101	679,447
Chromic iron ore..... do.....	359	7,230	670	8,300
Feldspar..... short tons.....	70,474	428,553	76,539	401,788
Fuller's earth f..... do.....	29,714	278,367	33,486	301,694
Gems and precious stones.....	.....	415,063	.....	534,380
Glass sand..... short tons.....	1,993,553	1,134,599	1,104,451	1,163,375
Graphite..... { crystalline, pounds.....	2,288,000	132,840	6,294,400	313,271
..... { amorphous, short tons.....	1,443	75,250	5,096	32,238
Magnesite..... do.....	6,587	19,761	9,465	37,860
Manganese ores..... long tons.....	6,144	62,779	1,544	19,675
Manganiferous ores..... do.....	55,620	132,556	68,654	215,925
Mica..... { sheet pounds.....	972,964	234,021	1,809,582	234,482
..... { scrap, short tons.....	2,417	33,904	4,090	46,047
Mineral waters..... gallons sold.....	56,108,820	7,287,269	64,674,486	6,894,134
Quartz..... short tons.....	47,318	180,157	135,469	249,466
Talc and soapstone..... do.....	46,615	703,832	81,802	86,002
Talc, fibrous..... do.....	70,739	697,390	48,536	359,937
Thorium minerals (monazite), and zircon, pounds...	422,646	50,718	543,931	65,282
Titanium ores (rutile)..... do.....	.....	.....	121	10,000
Tungsten ores..... short tons.....	671	229,955	1,619	614,370
Uranium and vanadium minerals..... do.....	.....	.....	.....	(v)
Total value of nonmetallic mineral products.....	.....	1,044,875,733	.....	1,132,197,897
Total value of metallic products.....	.....	549,923,116	.....	753,427,290
Estimated value of mineral products unspecified v.....	.....	250,000	.....	300,000
<b>Grand total.....</b>	.....	<b>\$1,595,048,849</b>	.....	<b>\$1,885,925,187</b>

a Production of iron ore. 1900: 27,553,161 long tons; value at mines, \$66,590,504. 1901: 28,887,479 long tons; value at mines, \$49,256,245. 1902: 35,554,135 long tons; value at mines, \$65,412,950. 1903: 35,019,308

# PRODUCTION OF MINERAL AND CHEMICAL SUBSTANCES

Substance	Unit	1909	1910
Ammonium sulphate .....	S. tons	106,500	116,000
Arsenic .....	lb.	2,015,880	2,652,000
Bromine .....	lb.	1,100,000	950,000
Coal, anthracite .....	S. tons	77,126,980	80,281,306
Coal, bituminous .....	S. tons	367,076,821	403,533,152
Coke .....	S. tons	35,076,902	35,625,865
Copper sulphate .....	lb.	45,000,000	26,356,788
Iron ore .....	L. tons	53,086,869	54,296,200
Magnesite .....	S. tons	7,942	8,000
Petroleum .....	Bbl.	182,058,453	210,636,505
Tungsten ore .....	S. tons	1,607	2,130
Zinc oxide .....	S. tons	76,600	78,000

# PRODUCTION OF METALS IN THE UNITED STATES

Metal	Unit	1909	1910
Aluminum (e) ..	lb.	15,000,000	12,000,000
Copper (a) .....	lb.	1,106,336,328	1,086,151,430
Ferromanganese ..	L. tons	225,400	240,525
Gold (b) .....	§	99,673,400	96,055,214
Iron .....	L. tons	25,570,431	27,055,067
Lead (c) .....	lb.	371,502	401,524
Nickel (f) .....	S. tons	19,284,172	29,359,544
Quicksilver .....	Flask.	20,952	21,500
Silver (b) .....	Tr. oz.	54,721,500	56,438,895
Zinc (d) .....	S. tons	266,462	278,380

(a) Production from ore originating in the United States. (b) The statistics for 1909 are the final and those for 1910 are the preliminary statistics reported by the director of the Mint. (c) Production of refined lead from ore and scrap originating in the United States; antimonial lead is included. (d) Total production of smelters, except those treating dross and junk exclusively, includes spelter derived from imported ore. (e) Estimated. (f) Imports for first 11 months of each year. This nickel is smelted in the United States for the production of metal, oxide and salts.

the Payne tariff law as a violation of the pledges of the Republican national platform, and also a plank expressing adherence to all of the poli-

cies promulgated by Theodore Roosevelt, mildly praising Mr. Taft for his efforts to advance legislation, but refraining from endorsing any of his direct administrative acts. The platform finally adopted was a compromise. It endorsed President Taft's efforts to secure legislation for the benefit of the whole people, ignored reference to the Payne tariff law, applauded the Roosevelt conservation policies and commended the railroad legislation. The rest of the platform was taken up with a consideration of State issues. A contest developed in the convention through the efforts of the county optionists to secure a plank committing the party to county option. This was defeated by a decisive majority, but the party was pledged to accord the measure a full and fair hearing. The convention also endorsed the course of the Minnesota delegates in Congress. Senator Clapp was endorsed for re-election. The convention renominated Mr. Eberhart for governor by acclamation. Samuel Y. Gordon was nominated for lieutenant-governor.

The Democratic State Convention met at Minneapolis July 28. The only prominent candidate for the nomination for governor was John Lind, one of the most prominent figures in the Democratic politics of the State, who had previously been governor. Mr. Lind said at first that he was not a candidate and under no circumstances would accept the nomination. In spite of this, however, he was nominated. No other name was mentioned as a candidate. An effort was made to incorporate a county option plank in the platform, but this was defeated and no reference to the subject or any form of temperance legislation was made, all such being included in the general referendum plank. The platform denounced President Taft for his approval of the Payne tariff law, declared that Congress was subservient to the spe-

long tons; value at mines, \$66,328,415. 1904: 27,644,330 long tons; value at mines, \$43,186,741. 1905: 42,526,133 long tons; value at mines, \$75,165,804. 1906: 47,749,728 long tons; value at mines, \$100,597,106. 1907: 51,720,619 long tons, value at mines, \$131,996,147. 1908: 35,983,336 long tons; value at mines, \$81,845,904. 1909: 51,294,271 long tons; value at mines, \$110,290,596. Statistics for iron ore and value of pig iron are collected by the Survey; statistics for pig iron output are furnished by the American Iron and Steel Association.

b By "spot" value is meant value at the point of production.  
c Long tons are tons of 2,240 avoirdupois pounds; short tons are tons of 2,000 avoirdupois pounds.  
d Average price per troy ounce in 1906 was 67 cents; in 1907 it was 66 cents; in 1908, 53 cents in 1909, 52 cents.  
e Prior to 1905, coining value, \$20.6718 per troy ounce; in 1905, coining value, \$20.671834; since 1905, coining value, \$20.671834625323.

f The product from domestic ores only.  
g Of 75 avoirdupois pounds.  
h Includes antimony smelted from imported ores, and in 1908 antimony contained in hard lead.  
i Includes nickel in copper-nickel alloy, and in exported ore and matte.  
j In 1908, no production. In 1909 about 17 short tons of stream tin from Alaska were shipped to England.  
k Including brown coal and lignite, and anthracite mined elsewhere than in Pennsylvania. Coke, 1902: 25,401,730 short tons; value at ovens, \$63,339,167. 1903: 25,274,281 short tons; value at ovens, \$66,498,664. 1904: 23,661,106 short tons; value at ovens, \$46,144,941. 1905: 32,231,129 short tons; value at ovens, \$72,476,196. 1906: 36,401,217 short tons; value at ovens, \$91,608,034. 1907: 40,779,564 short tons; value at ovens, \$111,539,126. 1908: 26,033,518 short tons; value at ovens, \$62,483,983. 1909: 39,315,065 short tons; value at ovens, \$89,965,483.  
m Of 42 gallons.

n Value of clay mined and sold as unmanufactured clay. 1900: \$1,840,377. 1901: 2,576,932. 1902: \$2,061,072. 1903: 2,594,042. 1904: \$2,320,162. 1905: \$2,768,006. 1906: \$3,245,256. 1907: \$3,448,548. 1908: \$2,599,986. 1909: \$3,500,000.

o Of 380 pounds net.  
p Includes limestone for iron flux, but not grindstones.  
q Included under feldspar and quartz.  
r Of 280 pounds net. Value is for net product exclusive of cost of packages.  
s Includes metallic paint, mortar colors, ochre, amber, sienna, shale, ground slate, sublimed blue lead, sublimed white lead, and zinc-lead.

v Includes nitrate of soda, carbonate of soda, sulphate of soda, and alum clays used by paper manufacturers and bismuth, cadmium, columbite, lithium, nickel and cobalt, selenium, and vanadium, valued together in 1909 at \$273,645.

# TOTAL VALUE OF MINERAL PRODUCTS

	1908	1909
Metals .....	\$ 549,923,116	\$ 754,427,290
Non-metals .....	1,044,875,733	1,132,197,897
Unspecified .....	250,000	300,000
Total .....	1,595,048,849	1,885,925,187

cial interests and extravagant, and denounced the dismissal of Mr. Pinchot as a national shame and the retention of Mr. Ballinger as a scandal. A plank was offered criticising Mr. Roosevelt for his activity in party politics, but this was eliminated after a general discussion in the Committee on Resolutions. M. C. Tift was nominated for lieutenant-governor. Mr. Lind, although he was nominated as the unanimous choice of the convention, held to his declaration that he would not be a candidate and early in September he sent in his resignation as head of the ticket. The State Central Committee met on September 15, and nominated in his place James Gray, former mayor of Minneapolis and an editorial writer on the *Minneapolis Journal*. Mr. Gray accepted the nomination.

Primaries for the nomination of members of Congress were held on September 20. The most notable result was the success of the progressive Republican candidates. In the St. Paul, Minneapolis and Duluth districts, however, regular representatives were elected by ample pluralities. The most notable result in point of national interest was the defeat in the Winona district of James A. Tawney, one of the Republican leaders in the House and chairman of the Committee on Appropriations. Mr. Tawney is one of the most influential members of Congress, but his attitude on the tariff bill as a strong supporter of the conservative element was displeasing to a majority of his constituents. His successful opponent was Sidney Anderson. In the election on November 8, the entire Republican ticket was elected. Governor Eberhart's plurality over Mr. Gray was about 60,000. The legislature remains Republican, ensuring the re-election of Senator Clapp. The division of the congressional representatives remains unchanged.

**OTHER EVENTS.** A curious condition arose in the section of the State extending from the Canadian border southward to Minneapolis, including that city and Duluth, over a decision made by the Secretary of the Interior that liquor should not be sold on account of treaties made years ago with Chippewa Indians. Under these treaties the government reserved the right to suppress liquor traffic on ceded lands which passed into the possession of white settlers. As the land was settled it was found necessary to place checks on the sale of liquor to Indians. The State also assisted in the work by passing laws prohibiting the sale of liquor to them even though they had qualified as citizens. In spite of these precautions, liquor continued to be sold to them and they were a source of annoyance to the white people dwelling in the small towns as the result of squandering the funds which they received annually from the government in the purchase of liquor. Conditions reached such a point in 1908-9 that the government threatened to invoke the provisions relating to the introduction of liquor, pointing out that as the term "Indian country" had been construed it took in a large area, embracing many hundreds of towns and cities. Many saloons were closed. During the summer of 1910 an investigation was carried on by government agents and as a result of their report the Commissioner of Indian Affairs issued an order directing the closing of saloons in some sections of the Indian country and allowing them to run in others. This action created considerable excitement

throughout the State. The Federal government was criticised for attempting to enforce a Prohibition measure, and on the other hand it was commended by those who were in favor of Prohibition. Representatives of the towns where saloons were closed protested, asserting that it was unfair and unjust to prescribe what was equivalent to Prohibition in some towns and permit the sale of liquor in others. Protest was made to Secretary Ballinger, who is the immediate superior of the Commissioner of Indian Affairs. After listening to these protests Secretary Ballinger wrote a letter to the Commissioner of Indian Affairs, ordering the rigid enforcement of the law, but giving at the same time unofficial assurances permitting liquor to be introduced and sold in the "Indian country" if the local officials saw to it that the traffic did not touch the Indians.

On July 23 Frederick N. Dickson, master in chancery in the lumber rate suit, begun in the fall of 1908 against the Interstate Commerce Commission by the Great Northern, Northern Pacific, Union Pacific and the Chicago, Burlington and Quincy railroads, served his preliminary findings on the attorneys of both sides. In these findings the railroads won a substantial victory. The lumber rate schedule established by the Interstate Commerce Commission from the coast to all points west of the Pembina line, which is substantially made up of the western boundaries of Minnesota, Iowa and Missouri, is sustained, but the rates from the coast to points east of that line are declared to be unreasonably low as established by the Interstate Commerce Commission. The railroads contended for a rate of 50 cents a hundredweight on lumber shipments from Portland, Ore., to St. Paul, and for 60 cents from Portland to Chicago. The Interstate Commerce Commission allowed 45 cents from Portland to St. Paul, 55 cents from Portland to Chicago. Mr. Dickson upheld the contentions of the railroads and recommended an injunction nullifying the order of the Interstate Commerce Commission on these rates and on other lumber rates from the coast to points east of the Pembina line.

On May 28 Minneapolis was visited by a disastrous fire which caused a loss of nearly \$1,000,000. For a time the great flour milling district was threatened. Several large manufacturing establishments were burned. The State also suffered in October from forest fires which caused property losses aggregating many millions and loss of probably fifty lives.

**STATE OFFICERS:** Governor, Adolph O. Eberhart, Rep.; Lieutenant-Governor, S. Y. Gordon; Secretary of State, Julius A. Schmahl; Auditor, S. G. Iverson; Treasurer, Walter J. Smith, Rep.; Attorney-General, George T. Simpson, Rep.; Adjutant-General, Fred B. Wood, Dem.; Superintendent of Education, C. G. Schultz, Rep.; Commissioner of Insurance, J. A. Hartigan, Dem.

**JUDICIARY.** Supreme Court: Chief Justice, Charles M. Start, Rep.; Associate Justices, Calvin L. Brown, Rep.; Edward A. Jaggard, Rep.; P. E. Brown, Rep.; David Simpson, Rep.; Clerk, I. A. Caswell, Rep.

**STATE LEGISLATURE, 1911.** Senate: Republicans, 42; Democrats, 19; Independent, 2; Republican majority, 21. House: Republicans, 89; Democrats, 26; Independent, 5; Republican majority, 58. Joint Ballot: Republicans, 131; Democrats, 45; Independent, 7; Republican majority, 79.

**MINNESOTA, UNIVERSITY OF.** An institution of higher learning at Minneapolis, Minn., founded in 1869. The number of students enrolled in the several departments of the university in 1910-11 was 5669. The faculty numbered 373. Professor Hardin Craig, of Princeton University, was appointed to a chair in the English department of the university. Among the benefactions received during the year was one of \$60,000 from Mr. Thomas H. Shevlin of Minneapolis. This fund is distributed in four fellowships of \$10,000 and \$20,000 for the enlargement of Shevlin Hall, the woman's building of the university. The amount of productive funds of the university in 1909-10 was \$1,425,000, and the income was \$750,000, most of which was furnished by the State. The President is Cyrus Northrup, LL. D.

**MINOR PLANETS.** See ASTRONOMY.

**MISSIONS, PROTESTANT FOREIGN.** Missionary work was carried on during 1910 in various foreign countries with unabated vigor. Statistics of missions carried on by the various denominations will be found under the respective headings.

**LAYMEN'S MISSIONARY MOVEMENT.** This movement, which has reached astonishing proportions, was the result of a meeting held in New York City on November 15, 1906, by a number of laymen who were celebrating the one hundredth anniversary of the "haystack prayer-meeting," out of which grew the American Board of Commissioners for Foreign Missions. A series of resolutions were passed at this meeting calling into existence a committee of twenty-five or more representative laymen to consult with the secretaries of the various foreign missionary boards, with reference, first, to the conduct of a campaign of education among laymen to interest them more largely in missions; second, to the devising of a comprehensive plan for the evangelization of the world in this generation; third, to endeavor to send a commission of fifty or more laymen to visit the mission fields and report their findings to the church at home. These proposals were laid before the Annual Conference of Foreign Mission Boards of the United States and Canada at Philadelphia on June 9, 1907, and they received the hearty endorsement of this Conference. In 1907 a commission of six laymen from the United States and Canada visited a number of the larger cities of the United Kingdom, presenting the plans and methods of the movement. Committees were appointed to extend the work. An active campaign was carried on in Canada in 1908-9 and in 1909-10 a similar national missionary campaign was conducted through the United States. This included conventions at seventy-

five of the leading cities, culminating in the National Missionary Congress at Chicago, May 3 to 6, 1910. The laymen's missionary movement has no organization apart from a series of committees. A general committee of over 100 laymen meets semi-annually and gives general direction to the movement. The chief executive officer is the general secretary, J. Campbell White.

**WORLD'S MISSIONARY CONFERENCE.** The most important event in the history of missions during the year was the World's Missionary Conference, held at Edinburgh, Scotland, June 14-24, 1910. This was the second conference of this nature that has been held, the first having been the Ecumenical Missionary Conference, held in New York, in 1900. Arrangements for the Conference were in the hands of the British Executive Committee, of which Lord Balfour of Burleigh was the chairman. Delegates attended from nearly all the countries of the world including representatives of nearly every type of Protestant faith. The Conference selected as its president Lord Balfour, but the actual leader was Dr. J. R. Mott, who is the organizer of the Students' Volunteer Missionary Union. The delegates numbered 1200 and in addition there were thousands who attended the meetings. The Conference sat daily for about two weeks and each day considered the report of one of the eight commissions which had been gathering information for nearly two years. These reports dealt, first, with carrying the Gospel to all the non-Christian world; second, the church in the mission field; third, education in relation to the Christianization of national life; fourth, the missionary message in relation to non-Christian religions; fifth, the preparation of missionaries; sixth, the home basis of missions; seventh, missions and government, and eighth, coöperation and the promotion of unity. Among the speakers at the Conference were the Archbishop of Canterbury, the bishops of Birmingham and Southwark, Rev. Lord William Cecil and Mr. William J. Bryan. The proceedings throughout were remarkable for the high spiritual level attained. At the close of the Conference a continuation committee was appointed. This is charged with the duty of arranging for future conferences.

**STATISTICS OF MISSIONS.** The table below, taken from the Almanac of Missions of the American Board of Commissioners for Foreign Missions, gives the number of missionaries from the United States, Canada, Great Britain and Ireland and Continental Europe, now engaged in the mission fields, together with other statistics:

Countries*	Stations and Outstations	Men and Women	Native Laborers	Communications	Added 1910	Under Instruction	Income
United States .....	12,508	6,452	30,750	776,198	69,680	371,091	\$10,317,749
Canada .....	461	509	1,041	15,684	1,197	21,214	526,952
Great Britain and Ireland .....	15,329	6,774	38,330	589,786	28,124	670,248	8,338,476
Continental Europe .....	6,612	3,089	13,171	380,293	15,485	240,461	3,241,593
Totals .....	34,910	16,824	83,292	1,761,961	114,486	1,303,014	\$22,424,770

**MISSISSIPPI.** One of the South Central Division of the United States. Its area is 4665 square miles. Its capital is Jackson.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was

1,797,114, as compared with 1,561,270 in 1900, and 1,289,600 in 1890. The increase in the decade from 1900 to 1910 was 15.8 per cent. The State ranks twenty-first in point of population whereas in 1900 it ranked twentieth. The

population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** The State is not important as a producer of minerals. The most important are clay products, which in 1908 were produced to the value of \$828,737. There were produced also considerable quantities of mineral water, coal products, sand and gravel and sand-lime brick.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909-10 are shown in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	3,232,000	66,256,000	\$41,741,000
1909.....	2,810,000	40,745,000	33,003,000
Winter wheat, '10	5,000	70,000	81,000
'09	1,000	11,000	13,000
Oats, 1910.....	175,000	3,360,000	1,848,000
1909.....	150,000	2,400,000	1,632,000
Rice, 1910.....	2,800	84,000	59,000
1909.....			
Potatoes, 1910..	9,000	765,000	719,000
1909.....	9,000	783,000	744,000
Hay, 1910.....	100,000	142,000a	1,732,000
1909.....	83,000	122,000	1,403,000
Tobacco, 1910..	100	55,000b	11,000
1909.....	100	50,000	13,000
Cotton, 1910....		1,160,000c	
1909.....		1,083,000	

a Tons. b Pounds. c Bales.

**EDUCATION.** The total number of children of school age in the State in 1908 was 712,044. Of these 301,548 were white and 410,089 were colored. The total enrollment was 459,981. Of these 221,392 were white and 239,639 were colored. There were 3883 licensed white teachers in the State and 3253 colored teachers. The average monthly salary of white teachers was \$58.84, and of colored teachers, \$29.57. The total disbursements for educational purposes in 1907-8 amounted to \$872,040. The legislature of 1910 passed several important measures relating to education. An act was passed to establish a Mississippi normal college. The measure also provided for the establishment of county agricultural high schools. Other measures provide for the transportation of pupils where schools are consolidated and for methods of raising money for schools by taxation.

**CHARITIES AND CORRECTIONS.** The charitable and correctional institutions supported by the State, with their populations in 1910, are as follows: Confederate Soldiers' Home at Beauvoir, 102; Deaf and Dumb Institution at Jackson, 107; Blind Institution at Jackson, 50; State Insane Hospital at Jackson, 1385; East Mississippi Insane Hospital at Meridian, 654; State Charity Hospital at Vicksburg, State Charity Hospital at Natchez, and the Mattie Hersee Hospital at Meridian. The legislature of 1910 authorized the establishment of a State charity hospital at Jackson, a site for which has been selected and preparations for building made. The State prison contains 1800 convicts, all of whom live and work on plantations owned by the State. There is no reformatory, juvenile or otherwise, and boys of tender years are associated with men old in crime. A movement is on foot to remedy this evil, and it is almost a certainty that the legislature of 1912 will do so.

#### POLITICS AND GOVERNMENT

The legislature was in session in 1910 and passed many important measures. These will

be found noted in the section *Legislation* below. On February 22, the legislature, after a deadlock lasting seven weeks, elected LeRoy T. Percy United States Senator to fill the vacancy caused by the death of the late Senator McLaurin, who died in 1909. Shortly after Senator Percy had taken his seat in the Senate, charges were made that bribery had been employed in securing his election in the legislature, where his chief opponent was former Governor Vardaman. Theodore G. Bilbo, a State Senator, alleged that at the time of the election of Senator Percy he had accepted a sum of money from L. C. Dulaney for changing his vote from Governor Vardaman to Mr. Percy. Dulaney was indicted by the grand jury. As soon as these charges were made public, Senator Percy demanded an investigation. He denied that unlawful means had been employed in securing his election. After an investigation he was entirely exonerated from these charges. On trial Dulaney was acquitted by the jury as soon as it retired. A statement unanimously signed was issued to the effect that the verdict was based on disbelief in Bilbo's story.

Mississippi was one of the few States in which elections for State officers were not held in 1910. The November elections were limited to candidates for Congress. The State is never in doubt politically, and the Democratic nominees were elected. Three of the candidates were for re-election and in three districts new candidates offered themselves and were elected. Certain amendments to the State constitution were voted on and adopted. One provides for the election of judges and chancellors instead of their appointment as at present.

**LEGISLATION.** Among the important measures enacted at the legislative session of 1910 were the following: An act was passed which declares that contributory negligence shall in no case bar recovery for injuries or death, but that such negligence may be submitted to a jury in mitigation of damages. The legislature passed several important measures relating to education. A normal college and county agricultural high schools were created. The four higher institutions of learning in the State were consolidated under one board of seven trustees appointed by the governor. Provision was made for the transportation of pupils when several schools are consolidated into one. The Federal income tax amendment was passed. Important changes were made in the composition of the judiciary of the State. Two supreme court commissioners, seven circuit judges, three chancellors, and a prosecuting attorney for each county were added. An act was passed forbidding the misbranding or adulteration of foods. A law was passed looking toward the reduction of tuberculosis. This includes a requirement that practising physicians, under penalty of a fine of \$1050, shall report all cases of the disease to the State Board of Health in order that it may send the patient proper instructions for regaining his health and preventing contagion. The birthday of Robert E. Lee was made a public holiday. The chancery courts of the State were given jurisdiction, concurrent with the law courts to entertain suits to restrain violations of the liquor law.

**STATE OFFICERS.** Governor, E. F. Noel; Lieutenant-Governor, Luther Manship; Secretary of State, J. W. Power; Treasurer, George R. Edwards; Auditor, E. J. Smith; Superin-

tendent of Education, J. N. Powers; Attorney-General, S. S. Hudson; Adjutant-General, Arthur Fridge; Land Commissioner, J. L. Gillespie; Commissioner of Agriculture, H. E. Blakeslee; Commissioner of Insurance, T. M. Henry—all Democrats.

**JUDICIARY.** Supreme Court: Chief Justice, Robert B. Mayes; Associate Justices, Sydney Smith and William D. Anderson; Commissioners, Albert H. Whitfield and Frank A. McLain; Clerk, George C. Myers—all Democrats.

The State legislature is wholly Democratic.

**MISSISSIPPI RIVER.** See **WATERWAYS**, INTERNAL.

**MISSOURI.** One of the South Central States of the United States. It has an area of 69,430 square miles. Its capital is Jefferson City.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 3,293,335 as compared with 3,106,665 in 1900 and 2,679,185 in 1890. The increase in population in the decade 1900 to 1910 was 6 per cent. The State ranks seventh among the States in point of population, whereas in 1900 it ranked fifth. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** Missouri is the most important State in the production of lead and zinc. There were produced in 1909 142,650 tons of primary lead, as compared with a production of 122,451 tons in 1908. Of spelter there were produced 140,676 tons as compared with 123,655 tons in 1908. The coal production in 1909 was 3,096,785 short tons as compared with 3,317,315 short tons in 1908. The coal production showed a decrease in recent years due largely to the increased production and consumption of petroleum and natural gas in the mid-continent fields. The State has also important products of clay. It is also an important producer of Portland cement. In 1909 there were produced 3,412,160 barrels, valued at 2,808,916 as compared with 2,929,504, valued at \$2,551,236 in 1908. Among other mineral products are building stone, lime rock, gravel, petroleum, silver and barytes.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909-10 are shown in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910...	8,300,000	273,900,000	\$120,516,000
1909...	8,100,000	213,840,000	126,166,000
Win. wheat '10	1,821,000	25,130,000	21,863,000
'09	1,943,000	28,562,000	29,969,000
Oats, 1910...	780,000	26,208,000	8,387,000
1909...	690,000	18,630,000	8,011,000
Barley, 1910...	2,000	54,000	32,000
1909...	2,000	50,000	34,000
Rye, 1910...	14,000	210,000	158,000
1909...	15,000	225,000	184,000
Buckw., 1910...	2,000	33,000	29,000
1909...	2,000	42,000	37,000
Flaxseed, 1910	20,000	168,000	353,000
1909	25,000	202,000	232,000
Potatoes, 1910	92,000	7,912,000	5,380,000
1909	88,000	7,480,000	5,012,000
Hay, 1910...	2,700,000	3,510,000a	32,292,000
1909...	2,755,000	3,719,000	30,868,000
Tobacco, 1910	7,500	7,875,000b	945,000
1909	5,000	4,425,000	575,250
Cotton, 1910		43,000c	
1909		45,141	

a Tons. b Pounds. c Bales.

**EDUCATION.** The total school population of the State at the end of the fiscal year 1910 was 1,003,434. The total enrollment was 707,031,

and the average daily attendance was 490,374. The total expenditures for educational purposes in the State in the fiscal year was 13,905,188.

**CHARITIES AND CORRECTIONS.** The State institutions in the eleemosynary and penal classification in Missouri are: Four insane hospitals located at Fulton, St. Joseph, Nevada, and Farmington (the last named being built on the cottage plan); a colony for the feeble-minded and epileptic at Marshall; a sanatorium for incipient tuberculosis at Mt. Vernon; two schools for the blind and the deaf, located at St. Louis and Fulton, respectively; homes for the veterans of the Federal and Confederate armies, located at St. James and Higginsville, respectively; a training school for incorrigible boys at Boonville; an industrial home for girls at Chillicothe; and the State penitentiary at Jefferson City. The State penitentiary, with an enrollment of nearly 2300 convicts, is the largest prison in the United States. There is a movement at present to establish a reformatory, reducing the penitentiary population. There are almshouses in 97 counties out of 115, and jails in all but 2 counties. Many new county institutions have been constructed within recent years. All the State institutions are under local boards of management appointed by the governor. The State and county institutions enumerated are under the supervision of the State Board of Charities and Corrections, which is bi-partisan and is appointed by the governor. This board has been in existence since 1897, and has fathered much important legislation in this field. Juvenile courts have been organized in 6 counties, beginning with the first law in 1903. There is no central organization for placing dependent and neglected children, although there is a large private society organized for this purpose under State law. The educational work in this field is carried on through the State Board and the State Conference of Charities and Correction, the latter having held 11 annual sessions. There is a State organization for the relief and control of tuberculosis and a recently organized society for the prevention of blindness. Charity organization work has received proper development only in the cities of St. Louis and Kansas City, although there is an organized effort to promote proper organization of charity in the smaller cities. Technical education for social work is given mainly through the St. Louis School of Social Economy, founded by the State university, and through the department of sociology of the State university, especially in its extension division.

#### POLITICS AND GOVERNMENT

There was no session of the legislature in Missouri in 1910, as the sessions are biennial, and the last was held in 1909. The next session begins January 4, 1911.

**ELECTIONS.** There was no election for governor in the State in 1910, as Governor Hadley's term does not expire until January, 1913. Municipal elections were held during the year and there was voting at primaries on August 1st for congressional nominations and nominations for minor State officers. At an election held on February 3 the no-license element carried every city and township in Jasper county in which a vote on local option was held. As a result of this vote, Joplin is the only "wet" city in the mining district of the State. Munic-

ipal elections were held on April 5. The Republicans were successful in Kansas City and wrested the control from the Democrats. The Democrats, however, were successful in St. Joseph, and retained their hold on the government of the city. Local option did not figure directly in the elections, as the question of prohibition was to be submitted to the voters in the November elections.

On August 2, primary elections for the nomination of candidates for Congress, and State judicial and county offices, were held throughout the State by both parties. The division of the Republican party into progressives and regulars was not so pronounced in Missouri as in other States. The primary was notable for the number of offices for which there was no contest. Nearly half the congressmen were nominated without opposition and the only contest for the State ticket was for the Democratic nomination for railroad commissioner. Most of the Republican and Democratic congressmen were renominated, among them Champ Clark from the Ninth District. Mr. Clark was leader of the Democratic minority in the 61st Congress and was the most prominent candidate to succeed Speaker Cannon as Speaker of the House.

Although the Democratic and Republican parties held State conventions, they were hardly more than formal, as the nominations had previously been made in the primaries. In the Republican convention the platform approved local option for counties and for wards and districts in cities. It endorsed equally the administrations of President Taft and President Roosevelt, and favored reduction of the tariff and a tariff commission.

The term of Senator Warner expires in 1911, and as he was not a candidate for re-election, several aspirants for the place appeared during the year. Among the most conspicuous of these was David R. Francis from St. Louis, a former governor, who, on August 21, announced himself as a candidate. Governor Hadley was also mentioned as a possible candidate, but he declared that he would continue in the governorship. In the primaries Mr. Francis was defeated for the nomination of James A. Reed.

The elections of November 8 resulted in a partial victory for both sides. The entire Republican State ticket was elected, including justices of the Supreme Court, State superintendent of schools and railroad and warehouse commissioner. The Democrats carried 13 of the 16 congressional districts. The statewide prohibition amendment submitted to the voters for ratification was defeated.

A controversy arose during the year between Governor Hadley and Senator Stone as to the validity of the latter's election to the United States Senate in 1909. The governor in a speech made during the senatorial primary election charged fraud in the election of Senator Stone. Upon being challenged by the latter to furnish a bill of particulars he stated on February 8 that there had been gross frauds in the voting in certain wards in the city of St. Louis by which Mr. Folk, former governor and opponent of Senator Stone, was deprived of a great number of votes sufficient to prevent his nomination. He demanded that Senator Stone submit to a recount and promised that in such an event he would call an extra session of the legislature, and would resign and pay all re-

count expenses if the recount failed to show votes dishonestly counted for Senator Stone in St. Louis. Senator Stone declared that the ballots had been burned and it was therefore impossible to count them. Governor Hadley denied this, and asserted that the ballots had not been burned and were available for recounting. No action was taken in the matter during the year.

**OTHER EVENTS.** The Attorney-General of the State on January 22 filed information against nine large packing house companies, alleging that they were operating in violation of the Anti-Trust laws of the State, and asking that an examiner be appointed by the Supreme Court to take testimony. Only one of the companies named is a Missouri corporation, the St. Louis Dressed Beef and Provision Company. The others were among the largest packing houses in the country, and included Armour & Co., Swift & Co., and the Hammond Packing Company. During an inquiry made by the Attorney-General of the State in April, the secretary of the St. Louis Dressed Beef Company, which was generally believed to be an independent concern, testified that the company was in reality owned by the National Packing Company, which was a holding corporation controlled by the Armour, Swift and Morris interests. The vice-president of the company admitted that in buying cattle, persons representing its interests pretended to bid against each other in order that there might seem to be competition. The Attorney-General proceeded against the National Packing Company and its subsidiary corporations in an attempt to oust it from the State.

**STATE OFFICERS:** Governor, Herbert S. Hadley; Lieutenant-Governor, J. F. Gmelich; Secretary of State, Cornelius Roach; Auditor, J. P. Gordon; Treasurer, James Cowgill; Attorney-General, Elliott W. Major; Superintendent Public Schools, Wm. P. Evans; Adjutant-General, F. M. Rumbold; Commissioner of Insurance, Frank Blake—all Democrats except Hadley, Gmelich, Rumbold, Blake and Evans.

**SUPREME COURT:** Chief Justice, Gavon D. Burgess; Associate Justices: Henry Lamm, Walter W. Graves, Leroy B. Valliant, A. M. Woodson, John Kennish, John C. Brown; Clerk, J. D. Allen—all Democrats except Lamm, Kennish and Brown.

**STATE LEGISLATURE, 1911.** The State legislature is wholly Democratic.

**MISSOURI, UNIVERSITY OF.** An institution of higher learning at Columbia, Mo., founded in 1839. The number of students enrolled in the several departments of the university in 1909-10 was 2903. The faculty was composed of 65 professors, 34 assistant professors, 64 instructors, and 44 assistants. At the end of the college year 1910, three members of the faculty retired upon the Carnegie Foundation. Professor A. O. Lovejoy, of the Department of Philosophy, resigned to accept a chair in the Graduate School at Johns Hopkins University. He was succeeded by Professor Arthur K. Rogers, of Butler College, Indiana. Dr. E. B. Veblen, formerly of Chicago University and Leland Stanford University, was appointed lecturer in economics. Professor T. A. Street, of the School of Law, resigned to enter government service in the Philippine Islands. Professor C. Stuart Gager, of the Department of Botany, resigned to accept the directorship of the Botanical Gardens of Greater New York.

Professor Clark W. Hetherington, of the Department of Athletics, was succeeded by Professor C. L. Brewer, of the Michigan Agricultural College. The noteworthy benefactions during the year included one of \$500,000 from Charles R. Gregory. The productive funds of the university amounted in 1909-10 to \$1,238,000 and the income to \$63,111. The President is Albert R. Hill, LL.D.

**MISSOURI RIVER RATE CASE.** See RAILWAYS.

**MITCHELL, Sir LEWIS.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**MITCHELL, S. WEIR.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**MODERNISM.** See ROMAN CATHOLIC CHURCH, and FRANCE, *History*.

**MODJESKA, HELENA.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**MOHAMMED SAID BEY.** See EGYPT.

**MOHONK, LAKE, CONFERENCE.** See ARBITRATION, INTERNATIONAL.

**MOLYBDENUM.** See ATOMIC WEIGHTS.

**MONACO.** A Mediterranean principality 3 miles long by  $1\frac{1}{2}$  broad. Population, 19,121; yearly average of visitors, 1,250,000. The town of Monaco has 2410 inhabitants; La Condamine, 6218; Monte Carlo, 3794. Value of trade not stated. Coal and wine are imported; olive oil, oranges, citrons, and perfumes exported. The revenue is mainly derived from the gaming tables. Annual grant for the concession, £70,000. There is an army of 126 men. Reigning prince, Albert, born Nov. 13, 1848. Heir-apparent, Prince Louis, born July 12, 1870. The Monegasques have succeeded, after three years of agitation, in obtaining a constitution from their prince. It provides for a national council of twenty-one members, to be elected every four years; the body will convene in May and October. The constitution was drawn up by three French juriconsults, and was ready for promulgation at the end of 1910.

**MONAZITE SANDS.** See CHEMISTRY.

**MONEY.** See CURRENCY AND FINANCIAL REVIEW.

**MONEY MARKET.** See BANKS AND BANKING.

**MONOPLANES.** See AERONAUTICS.

**MONOPOLIES.** See TRUSTS.

**MONORAIL.** See RAILWAYS.

**MONROE, W. S.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**MONTAGUE, C. E.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**MONTANA.** One of the Mountain Division of the United States. Its area is 146,572 square miles. Its capital is Helena.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 376,053 as compared with 243,329 in 1900 and 142,924 in 1890. The increase in the decade 1900 to 1910 was 54.5 per cent. The State ranks fortieth among the States in point of population, whereas in 1900 it ranked forty-third. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTIONS.** Montana is one of the three most important States in the production of copper. In 1909 it was the first State in point of production. There were produced in that year 314,858,291 pounds, as compared with 252,503,651 pounds in 1908. In 1910 the State was obliged to yield first place in the pro-

duction of copper to Arizona. The copper mines of the State in the latter year produced approximately 286,000,000 pounds. The State ranks first in the production of silver. There was mined, in 1910, silver to the amount of 11,519,059 fine ounces, as compared with 12,034,500 fine ounces in 1909. The figures for 1910 are according to the preliminary estimates of the Director of the Mint. The value of the gold produced in 1910, according to the same authority, was \$3,465,364, as compared with a value for the product of 1909 of \$3,750,100. The production of silver in 1910 was affected by the decreased yield of copper, the ores of which usually produce over nine-tenths of the State's silver output. The gold output derived from copper ores also decreased. The placer mining industry was in about the same condition in 1910 as in 1909, the production in each year aggregating about 26,000 fine ounces of gold. In 1909 Montana produced 1376 tons of lead, as compared with 2320 tons in 1908. The output of lead in 1910 increased very little over that of former years, aggregating approximately 3,600,000 pounds. The zinc produced in 1909 aggregated 12,000,000 pounds, which was derived largely from concentrate and ores shipped. The output in 1910, according to the estimates of the United States Geological Survey, greatly exceeded that quantity, as the mining of zinc attracted more attention in 1910 than in any previous year. The coal production of the State in 1909 surpassed all previous records, amounting to 2,553,940 short tons, as compared with 1,920,190 short tons in 1908. The coal mining industry has shown a steady increase in recent years. Other mineral products of the State include clay products, lime, precious stones and tungsten.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909-10 are shown in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	8,000	134,000	\$175,000
1909.....	5,000	175,000	170,000
Winter wheat, 1910.....	285,000	6,270,000	5,392,000
1909.....	185,000	6,012,000	5,230,000
Spring wheat, 1910.....	195,000	4,290,000	3,689,000
1909.....	165,000	4,752,000	4,134,000
Oats, 1910.....	350,000	13,300,000	6,118,000
1909.....	300,000	15,390,000	6,464,000
Barley, 1910.....	52,000	1,456,000	903,000
1909.....	50,000	1,900,000	1,197,000
Rye, 1910.....	4,000	80,000	54,000
1909.....	2,000	58,000	44,000
Flaxseed, 1910.....	60,000	420,000	1,008,000
1909.....	10,000	120,000	192,000
Potatoes, 1910.....	25,000	3,000,000	2,550,000
1909.....	25,000	4,500,000	2,295,000
Hay, 1910.....	600,000	840,000	10,500,000
1909.....	556,000	995,000	9,950,000

a Tons.

**FINANCE.** The report of the treasurer for the fiscal year ending November 30, 1910, showed total receipts of \$3,284,764. The total disbursements were \$3,213,091. There was a balance in the Treasury on December 1, 1908, of \$564,116. The balance on November 30, 1910, was therefore of \$568,134. The permanent school fund of the State amounted to \$1,504,542. The chief expenditures were for education, support of State institutions and the support of executive offices.

**CHARITIES AND CORRECTIONS.** The State charitable and correctional institutions with the sums disbursed for their support in 1910 were as follows: Soldiers' Home, \$7058; Deaf

and Dumb Asylum, \$517,408; State Reform School, \$10,092.

**POLITICS AND GOVERNMENT.** There was no meeting of the State legislature in 1910, as the sessions are biennial, and the last was held in 1909. The next session begins January 2, 1911.

**CONVENTIONS AND ELECTIONS.** There was no election for governor in the State in 1910, as the term of Governor Norris does not expire until January, 1913. The elections were for Congressmen, for clerk of the Supreme Court, for Railroad Commissioner and for minor State offices. The elections of November were important and interesting, however, because the legislature of 1911 will elect a Senator to succeed Senator Carter, whose term expires in that year. The Republican State Convention met in Missoula on September 15, and renominated for congressman Charles N. Pray. The convention was one of the largest and most enthusiastic in the history of the State. Concessions were made to the progressive element of the party in the making of the platform so as to suit both the progressive and regular wings. The platform commended the Roosevelt policies and was outspoken in the endorsement of the Taft administration. It also praised Senators Carter and Dixon, and Congressman Pray for their achievements in Congress.

The Democratic State Convention met at Livingston on September 8, and nominated Charles H. Hartman for Congress. The elections on November 8 resulted in victory for Mr. Pray and the other Republican candidates on the State ticket. The vote for members of the legislature was so close that it was not certain for several days whether Senator Carter would be renominated or would be succeeded by a Democrat. The official canvass, however, showed that the legislature on joint ballot stood: Democrats, 54; Republicans, 48. The leading candidates for the seat at the end of the year were T. J. Walsh, a lawyer, and W. J. Conrad, a banker and mining man.

**OTHER EVENTS.** The western part of the State was visited during the summer and fall of 1910 by disastrous forest fires, which caused a vast loss in property and many lives. The eastern or agricultural part of the State received thousands of new settlers, principally from the Middle West. Work on the various irrigation projects begun by the United States government was continued, and the fertility of the virgin soil in the arid regions was abundantly proved when water was applied. The completion of the Chicago, Milwaukee and St. Paul Railroad through the State aided much in the immigration movement. Many new hamlets sprang up along this line and also along the line of the Great Northern Railroad on the northern section. The Flathead Indian Reservation, the lands of which were drawn under the lottery system in August, 1909, was thrown open. Only about one-half of the actual lottery winners claimed homesteads, but their places were filled by those who drew numbers farther down the list, so that all the tillable land was taken up.

The year 1910 saw a trifle less than the usual activity in the mining regions, the copper output being restricted to meet the exigencies of the market. The curtailment, however, was not sufficient seriously to affect business.

**STATE OFFICERS.** Governor, Edwin L. Norris, Democrat; Lieutenant-Governor, William R. Allen; Republican; Secretary of State, A. N. Yoder, Republican; Treasurer, Elmer E. Esselstyn, Republican; Auditor, H. R. Cunningham, Republican; Attorney-General, A. J. Galen, Republican; Adjutant-General, Philip Greenan, Democrat; Superintendent of Education, W. E. Harmon, Republican; Commissioner of Agriculture, J. H. Hall.

**SUPREME COURT.** Chief Justice, Theodore Brantley, Republican; Justices, Henry C. Smith, Republican; William L. Holloway, Republican; Clerk, John T. Athey, Republican.

**STATE LEGISLATURE, 1911.** Republicans, Senate, 16; House, 32; joint ballot, 48; Democrats, Senate, 12; House, 42; joint ballot, 54; Republican majority, Senate, 4; Democratic majority, House, 10; Democratic majority, joint ballot, 6.

**MONTCLAIR, N. J.** See MUNICIPAL GOVERNMENT, *City Planning*.

**MONTENEGRO.** A hereditary constitutional monarchy; one of the Balkan States. Area, 3486 square miles; population, about 225,000 (Mussulmans, 13,000; Roman Catholics, 14,000; remainder, Eastern Church). Capital, Cetinje (5000 civil, 600 military population). Education, free and compulsory. Much of the country is mountainous and heavily forested. On the cultivable areas are grown corn, oats, potatoes, barley, buckwheat, and tobacco (a monopoly conceded to an Italian syndicate). Stock-raising is carried on; there are (estimate) 60,000 cattle, 500,000 sheep, 3000 horses, 8000 swine. Coarse woollens are the only manufacture. Imports (1907), estimated at £261,000; exports, £56,000. There is a railway from Antivari to Lake Scutari (11 miles). Telegraph lines, 528 miles; offices, 23; post-offices, 21. The estimated revenue and expenditure balanced (1909) at £121,123; in 1910, at £142,600. Public debt (1909), £70,000; 1910, £250,000 (a new loan was issued in 1910).

From the eighteenth year until he becomes sixty-two years of age every Montenegrin is liable for military service, but this is in a militia rather than a standing army. Two years is spent in the recruits' class, where for four or six months instruction is given in battalions of infantry and artillery and engineer organizations maintained for this purpose. Then 33 years is spent in the active army, where occasional military instruction and training is given and finally 10 years is passed in the reserve. On a war basis the forces consist of four divisions, three of three brigades and one of two brigades, making a total of 57 battalions, and one artillery brigade with 12 batteries. Four nucleus battalions or permanent troops are maintained at Cetinje, Podgoritz, Niksiitch, and Kolashine. When organized on a war basis the total strength was estimated at between 50,000 and 60,000.

Reigning King, Nicholas, born October 7 (September 25), 1841; proclaimed prince August 14 (26), 1860; married, October 27 (November 8), 1860, to Milena, daughter of Voivode Peter Vucotich (senator and vice-president of the council). On August 15 (29), 1910, by a vote of the Skupshtina, he was proclaimed King. Heir-apparent, Prince Danilo Alexander, born June 17 (29), 1871. The members of the Skupshtina (the legislative body), 74 in number, are elected

by universal suffrage. Prime Minister, Minister of Justice and of Foreign Affairs, Dr. Tomanovich.

The King was proclaimed on (or about) the fiftieth anniversary of his accession as prince upon the death of his uncle, Danilo I (1851-1860), who was the first ruler of Montenegro to abandon the title of Vladika (prince-bishop) and to substitute that of Gospodar (prince). Danilo I also threw off all allegiance to Turkey. In 1878 the independence of Montenegro was formally recognized in the treaty of Berlin; and in 1909 the limitations which that treaty had placed upon her complete sovereignty were removed, except that disallowing the erection of fortifications at Antivari or along the Boyana. Antivari was opened as a free port October 23, 1909.

**HISTORY.** August 28 was the fiftieth anniversary of Prince Nicholas's accession to the throne, and on that day Montenegro was formally raised to the rank of a kingdom. Great crowds assembled in the city on August 26 and there were many distinguished foreign visitors, including the King and Queen of Italy, the latter being a Montenegrin princess. At 6.30 A. M. the Skupstina held a secret session and voted a request to the Prince to assume the royal title. The document setting forth this decision was presented to the Prince and signed by him. Thereupon the Crown Prince addressed the people from the balcony of the palace, declaring that Montenegro had become a kingdom and its prince a King. The government of Prince Nicholas had been, down to 1905, almost patriarchal. On October 31, 1905, he announced to his people that henceforth Montenegro should be under a free constitution on a democratic basis. This change, however, did not seriously impair the Prince's power, which rested strongly upon tradition and upon the affection of the people. A more recent achievement of Prince Nicholas for the benefit of the country was the repeal of the provisions in the treaty of Berlin which placed the maritime and sanitary police on the Montenegrin coast under Austrian administration and closed to the warships of all nations the port of Antivari. The Cabinet resigned in September for personal reasons, and the King reconstructed it, but the Premier and the Minister of Public Worship retained office.

**MONTREAL EUCHARISTIC CONGRESS.** See ROMAN CATHOLIC CHURCH.

**MONTSERRAT.** An island of the British West Indies; one of the presidencies of the Leeward Islands (q. v.). Area, 32½ square miles. Population, 12,215. Births (1908), 356 (181 illegitimate); marriages, 57. Primary schools, 12, with 3250 pupils; government grant, £637. Cultivated area, 5328 acres. Cotton export (1908), 391,068 pounds. Imports (1908), £40,132 (from Great Britain, £16,220; British colonies, £8616; other countries, £3359; internal trade, £11,937). Exports, £45,304 (to Great Britain, £36,880; British colonies, £3025; other countries, £629; internal trade, £3870). Tonnage entered and cleared, 384,472. Post-offices, 13. Revenue and expenditure for the year 1908-9, £10,950 and £9296 respectively. Debt, March 31, 1909, £11,100. Commissioner (1910), Lieutenant-Colonel Davidson-Houston.

**MONTT, PEDRO.** President of Chile, died August 16, 1910. He was born in 1846, the son

of Don Manuel Montt, president in 1851-61. He was educated for the profession of law, and began his career as statesman as a member of the lower house of the Chilean Congress in 1868. He was a Liberal leader of the lower house until his election to the upper chamber. He later became a Councilor of State and Minister to the United States. During his service in this office he became familiar with American institutions. As a leader of the Liberal party and as president of the Republic he was an open champion of a sound financial system and was always opposed to a tendency toward a pernicious paper currency which prevailed in his country. For years his favorite policy had been abandonment of the paper currency and a resumption of gold payments. Although he was not able to persuade the Chilean Congress of the soundness of his financial views, he did much toward improving the financial condition of his country. He also succeeded in curbing prodigal expenditures and his influence was always for peaceful and honorable settlement of difficulties between Chile and other nations. He worked for the development of the railway systems of his country. He studied the educational systems of the United States, England, and Germany, the public service in England and irrigation in Italy. The severity of the fight for sound money at the session of Congress in 1910 undermined his health, and at the time of his death he was traveling to improve his condition. He sailed from New York City on the same steamer which was to have carried Mayor Gaynor, and he had just been speaking to that official when the latter was shot. The shock of this incident is supposed to have weakened his physical condition.

**MONYPENNY, W. F.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**MOODY, WILLIAM HENRY.** An American jurist, retired on November 20, 1910, from the Supreme Court of the United States. He was born at Newburyport, Mass., in 1853, and graduated from Harvard College in 1876. He studied law in the office of Richard H. Dana, and was admitted to the bar in 1878. He began the practice of law at Haverhill, Mass., and from 1888 to 1890 was city solicitor. He was district-attorney for the Eastern District of Massachusetts from 1890 to 1895. In the latter year he was elected to the 54th Congress for the unexpired term of General William Cogswell. He was re-elected to the 55th, 56th and 57th Congresses from 1897 to 1903, but resigned in 1902 to become Secretary of the Navy. He filled this position until 1904, when he became Attorney-General of the United States, serving until 1906. In the latter year he was appointed Associate Justice of the Supreme Court of the United States. On account of illness he was unable to perform his duties for the greater part of 1909-10 and was obliged to retire. Justice Moody was considered one of the most eminent lawyers in the United States. He had also great influence in political matters in Massachusetts.

**MOODY, WILLIAM VAUGHN.** An American poet and playwright, died October 17, 1910. He was born in Spencer, Indiana, in 1869, and graduated from Harvard University in 1893. In 1894-5 he was assistant in English at Harvard and Radcliffe College. From 1895 to 1901 he was instructor in English and rhetoric, and from 1901 to 1907 was assistant professor of

rhetoric at the University of Chicago. Many of his poems are of high merit and he was considered perhaps the most promising of the younger school of American poets. In 1907 his play, *The Great Divide*, was the theatrical sensation of the year. In 1909 another play, *The Faith Healer*, was produced, which, although it was well received, did not repeat the great success which he achieved in the former play. The best of his poems were probably his "Ode in Time of Hesitation" and his verses on "A Soldier Fallen in the Philippines." He was the author of the following volumes: *A Masque of Judgment*, a lyrical drama (1900); *Poems* (1901); *Fire Bringer* (1904); *History of English Literature* (1907); *The Great Divide* (1907); and *The Faith Healer* (1909). He also edited the Cambridge edition of Milton and other English classics.

**MOON.** See ASTRONOMY.

**MOORE, A. W.** See LITERATURE, ENGLISH AND AMERICAN, *Philosophy and Religion*.

**MOORE, F. F.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**MORAL EDUCATION.** See EDUCATION IN THE UNITED STATES.

**MORAL PHILOSOPHY.** See PHILOSOPHY.

**MORAVIANS**, called also THE UNITED BRETHREN (UNITAS FRATRUM) and the MORAVIAN CHURCH. An evangelical denomination which had its beginning in Bohemia and Moravia in 1457, among the followers of John Huss. It was first established in America in 1735 in Georgia, where a colony of Moravians had settled for the purpose of starting a mission for the conversion of the Indians; but five years afterward they removed to Pennsylvania, where they built the towns of Bethlehem and Nazareth. The Moravians of North America had, at the beginning of 1910, 18,352 communicants, of whom the American Moravian Church, North, included 14,226 and the American Moravian Church, South, 4126. There were 122 churches and 144 ministers. In the Northern Province there were 40 missionary societies with a membership of 3984. In the Sunday schools of the denomination there were at the beginning of 1910, 14,478 scholars and 1528 officers and teachers. Funds are maintained for retired ministers and widows of ministers. The church sustains missions in Africa, Alaska, Asia, Australia, Labrador, Nicaragua, South America, West Indies and Bohemia. A Home for Lepers is supported at Jerusalem. Among the educational institutions under the auspices of the Moravians are the Moravian College and Theological Seminary, the Moravian Parochial School for boys and girls, and the Moravian Seminary for girls, all at Bethlehem, Pa.; Linden Hall Seminary for Girls at Lititz; Nazareth Hall for Boys at Nazareth, Pa., and an Academy for Girls at Salem, N. C. The English official organ of the church is *The Moravian*, and the German official organ is *Der Brueder Botschafter*. The last Provincial Synod of the American Moravian Church, North, was held at Lititz, Pa., in September, 1908. The next Synod of this branch will be held in 1913. The General Synod of the Church throughout the world was held at Herrnhut, Saxony, Germany, in 1909. The next General Synod will convene in 1914.

**MORAWETZ, VICTOR.** See CENTRAL BANK.

**MOREAS, JEAN.** A French poet, died April, 1910. He was born in Athens in 1856, his real name being Papadiamantopoulos. He settled in

Paris in 1877 and in 1882 began to publish verses in some of the newer reviews. His first volume, *Les syrtis* (1884), parodied by Beauclair under the title *Les déliquescentes*, "par Adoré Floupette poète décadent" brought on his school the title "decadent." He was one of the most prominent of the new school of Symbolists to which Verlaine belonged, but in his later work he became more conservative and his poetry was fashioned on the classic rules. From his thorough knowledge of early French diction and metre he was called the "Grammarian Poet." In 1886 he published *Les Cantilènes*. Among his other works are *Le pèlerin passionné* (1891); *Eriphile* (1894); and *Stances* (1899 and 1901). Possibly the best examples of his work are to be found in the last mentioned volume.

**MORGAN, MORRIS HICKEY.** An American philologist, died March 16, 1910. He was born at Providence, R. I., in 1859, and graduated from Harvard College in 1881. In 1888 he became a tutor at Harvard and in 1891 was made assistant professor of Latin and Greek. He became professor of classical philology at the University in 1899, a position which he occupied until the time of his death. His published works include: *Dictionary to Xenophon's Anabasis*; translation of Xenophon's *The Art of Horsemanship*; *Bibliography of Persius*; *Phormio of Terence*; *Eight Orations of Lysias*; *Minor Works of Tacitus*, and the *Language of Vitruvius*.

**MORLEY, Lord.** See GREAT BRITAIN.

**MOROCCO.** An independent Mohammedan empire on the northwestern coast of Africa; the largest of the Barbary States. Estimated area, 234,000 square miles; population, variously estimated at from 4,500,000 to 8,000,000—Berbers, Tuaregs, Bedouin and Mued Arabs, Jews, and negroes. The sultan and his subjects belong to the Malekite sect of the Sunnite Mohammedans. There are three capitals: Fez (120,000 inhabitants); Morocco (50,000), the southern capital; and Mequinez (56,000). Tangier (35,000) is the residence of the foreign representatives, and a leading port.

**INDUSTRIES AND COMMERCE.** The "tell" or fertile regions of the mountains and coast cover about one-fourth of the total area; the steppes, one-twelfth; the Sahara, two-thirds. Agriculture is neglected and the mineral resources, though abundant, are undeveloped. Cereals, beans, peas, esparto, hemp, and fruits are among the crops grown. Slippers and carpets are manufactured. The total trade is given for two years, with Great Britain for 1908:

	1907	1908	Gt. Brit. '08
Imports .....	£2,692,325	£3,050,814	£1,270,013
Exports .....	1,947,226	2,484,670	763,993

Principal imports (1908): cottons, £1,048,474; sugar, £701,428; tea, £221,216; iron and hardware, £121,288. Principal exports: barley, £631,851; cattle, £285,000; eggs, £222,846; goat-skins, £178,217; almonds, £101,103; olive oil, £100,952; slippers, £46,539. Vessels entered (1908), 3048, of 1,894,620 tons. No railways exist; there are telegraphic submarine cables, and four wireless stations. There is a daily courier service between the principal towns. The postal service is controlled by the British, French, German, and Spanish governments.

**ARMY.** The army can hardly be called permanent for it consists of forces contributed to the Sultan by the various tribes and amounting

to between 25,000 and 30,000 men of all arms. The mounted force and the field artillery armed with European guns are the most important branches of the army as the "Tabors" or organized quotas furnished by the various tribes are for the most part infantry, and these are 40 in number, being organized in four divisions. There were 6 companies of engineers, a transport squadron of 2 companies, and a medical corps. The battalions comprise four companies each, the regiments of cavalry 4 squadrons and the regiments of artillery 4 batteries.

The effective strength in 1910 was as follows: Infantry, 17,080; cavalry, 4560; artillery, 1340, making a total of 22,980 and 2385 officers. There are also 2000 "rurales." The war budget in 1910-11 was 20,942,175.08 pesetas as compared with 17,377,654.87 in 1907-8. The increased annual expenditures went for the improvement of the fortresses and material.

**GOVERNMENT, ETC.** In government, civil and religious, Morocco is an absolute despotism. The Sultan's spiritual authority is not limited, as in other Mohammedan countries, by the expounders of the Koran. He has six ministers, whom he consults or commands, as he sees fit. Mulai-Abdel-Hafid, the reigning sovereign (1910), who dethroned his brother in 1907, was recognized by the Powers January 5, 1909. The state bank provided for by the Algeiras Act (1906) is now in operation. Under the loan agreement with Morocco, the French comptrollers have begun (1910) collecting 90 per cent. of the customs, leaving only 10 per cent. to the Sultan. Amount of French loan, £2,480,000. Annual customs revenue (estimated), £440,000. Total Moroccan debt, £8,200,000 (French and German loans, £3,040,000; war expenditure, indemnities, etc., £2,960,000; other loans, etc., £2,200,000). The Moorish police force, under French and Spanish instructors and officers, as provided for by the Algeiras Act, is in process of establishment.

### HISTORY

**THE FRENCH POLICY.** Early in 1910 there were signs of a more vigorous policy on the part of the French government in exacting compensation for injuries to Europeans. Moorish officials were arrested at Casablanca and Figig for maltreatment of French citizens. The other European powers also pressed their demands for redress of grievances and there seemed to be a concerted plan to bring pressure to bear upon Mulai-Hafid to make him respect European rights. Meanwhile the Moroccan ambassadors who had spent several months in Paris during 1909 for the negotiation of a loan, had signed in December of that year a formal acceptance of the conditions imposed by the French government. This action was taken only as the result of a definite demand of the French Foreign Minister, M. Pichon, who declared that France could no longer delay. The dilatory methods of the Moors were again illustrated by the delay in delivering the agreement to the Sultan for ratification in the first place, and then by the Sultan's delay in signing the instrument, which had already been accepted by his representative, El Mokri. M. Pichon finally sent an ultimatum to Fez charging the French Consul to inform the Sultan that if the instrument were not signed within 48 hours the French mission would immediately leave the capital and France would take the necessary measures to enforce her rights.

Thereupon the Sultan agreed to accept all the conditions of the loan. Besides this question, however, there remained the Sultan's violation of the agreement as to the French military commission. Instead of placing in their hands, as stipulated, the instruction of the Sherifian troops, the Sultan had called in Turkish officers for that purpose. The French government sent the Sultan an ultimatum on this point and demanded besides the appointment of an Algerian frontier commission, which the Sultan had hitherto refused. When the latter began to discuss the terms, the French envoy informed him that no discussion would be permitted and demanded a categorical answer. The Sultan then accepted the demands. There was general approval of the French ultimatum. The Sultan agreed to pay all the European creditors.

**MINING CLAIMS.** During 1910 a certain portion of the German press was active on behalf of Messrs. Mannesmann Brothers, a firm of German financiers who claimed certain mining rights in Morocco. It was alleged that in October, 1908, Mulai-Hafid, before he was recognized as sovereign by the Powers, had granted to Mannesmann Brothers as many as 600 mining claims in different parts of Morocco, valued at about \$50,000,000 for which they paid about \$75,000. This violated the agreement of August, 1908, whereby the diplomatic representatives of the Powers were forbidden to recognize any concessions made under laws not prepared under the direction of the Powers. The press carried on an agitation for the recognition of Mannesmann Brothers' rights and urged the government to denounce the resolution of 1908, but the Chancellor took the ground that this would be nothing short of a violation of the treaty and refused to consider it. Later negotiations were set on foot between the Powers for the reference of the various claims in Moroccan mining lands to a court of arbitration.

**OTHER EVENTS.** A French punitive expedition against the Zair tribesmen resulted in the severe punishment of that tribe. There were reports of internal disturbance in April. The Sultan's brother was proclaimed Sultan and the Sultan rallied his loyal tribesmen and recalled the army of Fez with a view of proceeding against him. In May the tribesmen repeatedly attacked the government troops and there was especially sharp fighting between the latter and the Hyaina tribe, which inflicted heavy losses on the Sultan's troops and took many prisoners. Raisuli, who for many years had figured before the public as a marauder, received high honors under the new Moroccan government, being appointed governor of Alcazar and the vicinity. Since Mulai-Hafid's accession there have been frequent reports of his cruelties to prisoners and in June, 1910, the foreign consuls brought complaints on this subject. The Sultan, through his finance minister, sent an official denial, but there was apparently convincing evidence of extreme cruelties inflicted upon Haj Ben Aissa, formerly governor of Fez, and his wife and children. The brother of the Sultan, Mulai-Kebir, who had revolted and asserted a claim to the throne, finally submitted in September, returning to Fez, where his estate was to be returned to him.

**MORRIS, GOUVERNEUR.** See **LITERATURE, ENGLISH AND AMERICAN, Fiction.**

**MORSE, H. P.** See **LITERATURE, ENGLISH AND AMERICAN, Travel and Description.**

**MOSES, M. J.** See **LITERATURE, ENGLISH**

AND AMERICAN, *Essays and Literary Criticism*.

**MOSESITE.** See MINERALOGY.

**MOSSO, ANGELO.** An Italian physiologist, died December, 1910. He was born at Turin in 1846 and studied medicine in that city and in Florence, Leipzig and Paris. In 1879 he was appointed professor of physiology at Turin University. He invented various instruments to measure the pulse and experimented and wrote upon the variation in the volume of the pulse during sleep, mental activity or emotion. He visited the United States in 1900-1901, and embodied the results of his observations in *Demorazia nella religione e nella scienza* (1901). Among his works are *Die Temperatur des Gehirns* (1894), and *Der Mensch auf den Hochalpen* (1898).

**MOTLEY, JOHN LOTHROP.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**MOTOR FIRE ENGINES.** See FIRE PROTECTION.

**MOTOR VEHICLE LAW.** See AUTOMOBILES.

**MOUNT WILSON SOLAR OBSERVATORY.** See ASTRONOMY.

**MOUREMTSEFF, SERGIUS ANDREEVITCH.** A Russian scholar and statesman, died October 17, 1910. He was born in Moscow in 1850. On the conclusion of his studies at the Moscow University, he was appointed professor of Roman Law at that institution, but was some years later deprived of his chair by government order in consequence of the decided Liberal views which he professed. His activity in the cause of reform spread over a period of nearly thirty years, and the prominent part which he played as a writer and speaker in the constitutional movement of 1904-5 led to his election to the first Duma at the head of the poll. He was returned as a member of the Constitutional Democratic party for his native town and was subsequently elected to the presidency of the new body, which was opened on May 10, 1906. His tenure of office was brought to a close two months later on the dissolution of the Duma.

**MOVABLE CONCRETE DAMS.** See CONCRETE.

**MOZAMBIQUE.** See PORTUGUESE EAST AFRICA.

**MOZANS, H. J.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**MUMBY, F. A.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**MUNBY, ARTHUR JOSEPH.** An English poet, died January, 1910. He was born in Yorkshire in 1828 and was educated at Trinity College, Cambridge, and after graduation was called to the bar. In 1865 he published *Verses, New and Old*. These contained "Doris," an exquisite pastoral. *Dorothy*, published in 1880, a country story in elegiac verse, was very popular in England and the United States. In 1891 appeared *Vulgar Verses*, written in dialect, and in 1893, *A Poem of Degrees*. In addition to these he published *Ann Morgan's Love, Poems, Chiefly Lyric and Elegiac*, and in 1909, *Relicta*. He was one of the competitors for the prize offered in 1859 by the Crystal Palace Company for a poem on the Burns centenary and his contribution was considered one of the best presented.

**MUNGER, THEODORE THORNTON.** An American Congregational clergyman and writer, died January 11, 1910. He was born at Bainbridge, N. Y., in 1830, and graduated from Yale College in 1851 and from the Yale Theological

Seminary in 1855. From 1856 to 1860 he was pastor of Congregational churches in Dorchester, Mass., and from 1862 to 1885 he occupied pastorates in Haverhill, Mass., Lawrence, Mass., San José, Cal., North Adams, Mass., and New Haven, Conn. In the latter city he was pastor of the United Church from 1875 to 1885, and after the latter date was pastor emeritus. He was well known as a writer of religious essays. Among his published works are the following: *On the Threshold; The Freedom of Faith; Lamps and Paths; The Appeal to Life; Horace Bushnell, Preacher and Theologian; Character through Inspiration*, and *Essays for the Day*. He also contributed numerous literary and theological essays to reviews and magazines.

**MUNICIPAL CIVIL SERVICE.** See CIVIL SERVICE.

**MUNICIPAL GOVERNMENT.** A broader conception of what cities should be and a closer attention to the multiplicity of elements which comprise true city greatness were marked features of the year. On every hand, chambers of commerce, boards of trade, merchants' and manufacturers' associations, have rivaled the purely civic organizations in working for the physical improvement as well as the moral and æsthetic uplift of the city and its inhabitants. No single manifestation of efforts for physical and æsthetic improvement has been more marked than the one which may be described under the general head of city planning. In purely administrative matters, including the frame of city government, charter reform has swept over the whole country, centering largely in the Commission Plan, which was adopted by some fifty cities in 1910. Part and parcel of the commission plan, but by no means confined to the cities which have adopted that plan, is the great movement for more democratic control of city government, to which practical effect has been given through Direct Primary and various other Election Reforms, the Initiative, the Referendum, and the Recall. Aside from physical improvements through the broad domain of city planning, much activity continues to be shown in such public works or services as Garbage and Refuse Disposal, Pavements and Roads, Sewerage, Sewage Purification, Water Purification and Water-Works. Sanitation and Public Hygiene or Public Health generally are receiving more and more attention, both through the public works and services just mentioned and through the many specific activities of State and local boards of health, as well as the numerous but scattered and uncoordinated efforts of various branches of the general government. Separate articles on most of the subjects mentioned in the foregoing introduction to the present article will be found in their proper alphabetical position, and various specific references will also be found at the close of this article. The remainder of the space under our present head, Municipal Government, will be devoted more particularly to City Planning, Increased Efficiency in city government, Bureaus of Municipal Research, State Supervision, Home Rule, Democratic or Popular Control, Charter Reform and the Commission Plan.

**CITY PLANNING.** An examination of a collection of city maps will show that collectively they consist of graphical representations of streets, avenues, boulevards, public places, parks, playgrounds, water areas and water fronts, bridges, street and steam railways, railway ter-

minals, residences, and various buildings devoted to manufacture and commerce. With comparatively few exceptions the various elements of city maps are not systematically planned in relation to each other and to the needs of the people whom they serve. The æsthetic element, in particular, is poorly worked out or quite neglected. Marked exceptions are the city maps of Washington, in this country, Paris, a large number of German cities and a few of the recently-built Garden Cities of England. Germany, alone, of all the great countries of the world, has evolved a worthy art and science of city planning. The orderly arrangement of the grounds and buildings of the Columbian Exposition at Chicago, in 1893, begot in the minds of a considerable number of Americans a conception of what city planning might be. Successive expositions deepened and spread the conception. Civic organizations and private individuals in many parts of the country turned their attention to city planning, and within a few years a small American school of city planners has arisen. In May, 1910, there was held at Rochester, N. Y., the second Conference on City Planning and Congestion of Population. Numerous papers on each subject were read and it was decided to continue the conferences, but hereafter to devote them to city planning alone. A notable feature of the Rochester conference was an address by Frederick Law Olmstead, Jr. After outlining the principles of city planning the speaker explained his omission of reference to the æsthetics of the subject by saying, in substance, that beauty in successful city design comes through fitting form to function. As an illustration, he cited the fast sailing ships of a half century ago, which any one would recognize as beautiful, although in developing their lines utility had been chiefly considered. Besides the Rochester conference in this country, a notable Town Planning Conference was held at London, in October, 1910. This was under the auspices of the Royal Institute of British Architects, but America and other countries were represented. Altogether, reports on improving the general plans of a score or two of American cities must have been made within the past five years, including an elaborate series of water-color studies for replanning Chicago. Perhaps the most notable progress thus far made in executing any of these city plans is at Cleveland, O., where a civic centre is being built to include city, county and Federal buildings grouped around an open space. The unfortunate fact about most of the city-planning work thus far attempted in the United States is that it is unofficial; that is, instead of being done by or for the municipality it is undertaken by a civic or a commercial association or a combination of many of these. Under such conditions it may be easy enough to secure an ideal plan, but very hard to accomplish anything concrete. As one instance out of many, a voluntary Art Commission spent much time and money to secure a town improvement plan and report for Montclair, N. J., and was at great pains to secure the draft of a Town Plan and Art Commission enabling act from the State legislature, applicable to any town in the State when adopted by referendum vote. At an election in 1910 the voters of Montclair overwhelmingly defeated the adoption of the act. As an offset to this discouraging event, an adjoining and smaller community (Glen Ridge, N. J.), is carrying out a borough plan report made by the

expert city planner who prepared the Montclair plan. A quarterly journal known as the *Town Planning Review* was established in 1910 by the Department of Civic Design, School of Architecture, University of Liverpool (England). An American quarterly called *Landscape Architecture* (Harrisburg, Pa.), was also established in 1910 by the American Society of Landscape Architects, and promises to devote considerable space to city planning. Although published prior to 1910, mention may be made of three notable books on city planning: Trigg's *Town Planning* (London, 1909); Unwin's *Town Planning in Practice* (London, 1909); and Robinson's *Modern Civic Art* (New York, 2d ed., 1904). A brief outline of the British Town Planning and Housing Act, under which notable reforms are being carried out in England, was given in the *INTERNATIONAL YEAR BOOK* for 1909, p. 324.

**INCREASED EFFICIENCY.** Municipal efficiency includes not only a reasonable approach to an ideal of excellence in the various classes of service performed, but also the minimum outlay of labor and expense consistent with attaining that ideal. Efficiency cannot be measured without establishing standards and then comparing results with the standards. All this demands the best possible administrative system, including staff organization, financial accounts and physical statistics. To perfect methods of administrative organization is one of the objects of charter reform, particularly reform directed towards holding city officials strictly accountable for deeds and results. Such accountability should of course be to the people whom public officials serve, but owing to the multiplicity and complexity of municipal affairs the average citizen has neither the time nor the ability to secure, sift and weigh the many data bearing on municipal efficiency. The task is all the more difficult because until recently there has been very little attempt on the part of city officials to provide either themselves or the public with trustworthy financial and physical statistics, comparable year with year, department with department and city with city. A growing recognition of this lack of data on which to base judgment of municipal efficiency, and of the need of some competent, expert agency to check up the work of city officials and departments and report the results to the public in a form readily grasped by the average citizen, has led many private agencies to undertake the work. Some of these have been committees of civic organizations, commercial or industrial organizations, like the Bureau of Inspection of the Merchants' Association of San Francisco, which performs the unusual service of inspecting municipal contract work. The more common and notable way of checking up and reporting on municipal efficiency is through Bureaus of Municipal Research, four of which were organized in 1910, making at least nine now in existence. These bureaus are supported by private subscription, are in charge of boards of directors, and employ municipal experts to carry on their varied and numerous lines of investigation. The location and order of incorporation of these bureaus, as reported by the first of them in point of time and extent of labors, are as follows: New York City, 1906; Philadelphia, 1908; Cincinnati and Memphis (Tenn.), 1909; Fort Wayne (Ind.), Westchester (N. Y.), Hoboken (N. J.), and Chicago, 1910. At Hoboken the name is "R. L. Stevens Fund for Municipal Research," and at

Chicago, "Bureau of Public Efficiency," but in all the other cities the name used is Bureau of Municipal Research. Official public bureaus, for the same or much the same general purpose, were established at Baltimore, in 1909; Boston, Atlanta (Ga.), Milwaukee, and St. Paul in 1910. The Boston bureau is called the Finance Commission, and though created under an amendment to the city charter the members are appointed by the governor of the State. The Atlanta bureau ("Board of Municipal Research and Statistics") consists of three members of the city council, three citizens and the city auditor. Its duties are "to collect statistics of various municipal corporations throughout the United States and foreign countries, and to advise the mayor and general council as to the statistics of such cities, and of the progress made by other cities in the conduct of municipal affairs that will be of benefit to the city of Atlanta." The "Milwaukee Bureau of Economy and Efficiency," with Prof. John R. Commons and Prof. Benj. M. Rastall, both of the University of Wisconsin, as directors, has undertaken a task something like that of the *Pittsburg Survey* of a few years ago, but one embracing investigations of strictly municipal as well as industrial matters. It is taking up municipal accounting methods and business procedure; hospitals, housing, sanitation, and industrial hygiene; poor relief, legal aid for the poor, unemployment, cost of living, the boy question, and the condition of working women, girls and children.

**STATE SUPERVISION.** Besides the Boston Finance Commission, which illustrates State supervision chiefly in its origin and the fact that it is charged with reporting recommendations for State legislation, other examples of State supervision of either municipal activities or of the services rendered by franchise corporations are the constantly increasing number of public-service commissions. New commissions of this kind were established by the States of Maryland and New Jersey in 1910, but with supervision over municipal and State-wide services rendered by private corporations only. Two other lines of increasing State supervision are (1) municipal accounting and (2) various sanitary works controlled by State boards of health. State audit of municipal accounts has been conducted for a few years past in Ohio, was started in 1910 in New York, and was authorized, in case of petition, by the Massachusetts legislature of the same year. Extensive State control over city and town water-works and sewerage systems, particularly as to purification, is now exercised by Massachusetts, New York, New Jersey, Pennsylvania and Ohio, chiefly through State boards or departments of health. In 1910, the Pennsylvania Department of Health ordered Pittsburg to prepare and submit plans for sewage purification works, as it had already instructed Philadelphia and various other cities of that State.

**HOME RULE.** While central control of certain branches of city administration is extending so also is municipal home rule. In fact, contrary to popular misconception a certain kind of State municipal control and municipal home rule are in harmony with each other, rather than in antagonism. That is to say, so long as States continue to exercise any power over cities it will include policies of State-wide interest. The general principles involved in these policies once having been established by the several legisla-

tures, legislative interference is greatly diminished if special administrative boards are entrusted with the duty of seeing that the municipalities follow those principles, instead of the legislature itself attempting administrative duties. To return to the extension of municipal home rule: Subject to constitutional limitations, the cities of a number of States, particularly in the West, now enjoy the privilege of framing their own charters, virtually in entire independence of the legislature.

**DEMOCRATIC OR POPULAR CONTROL.** Another notable change in municipal government is the power being gained, or regained, by the voting citizens to choose their own officials, to replace them by others before their terms of office expire, to veto the legislation passed by the city council and to take the enactment of legislation into their own hands. These privileges come through the direct primary and various election reforms, the recall of officers to stand against other possible candidates for their places, the referendum and the initiative.

**CHARTER REFORMS.** The Boston charter amendments of 1909 went into full effect in 1910. They introduced the "short ballot," or the substitution of a few for many elective officers, gave the mayor great executive power, made the city council a small (nine members) but dignified and unrivaled legislative body, and provided for the State-created Finance Commission, already mentioned. Acting under a provision of the charter amendments of 1909, various independent departments in charge of engineering and public works were consolidated, near the close of 1910, into a single-headed department, with deputies in charge of various divisions, the latter so arranged as to make one deputy responsible for underground and another for overhead street construction, and still another for bridges. This change has been described as a substitution of the geographical for the functional plan of organization, but its real significance is centralized responsibility and harmonious operation, first through having a single head, and second through placing each deputy in charge of those public works which overlap in space or function and whose operation under independent instead of unified management would be liable to continuous working at cross-purposes.

New charter legislation for New York City, which has been made the subject of reports by two special and one legislative commission during the past three years, was again passed over without definite action by the legislature of 1910. Baltimore, St. Louis, and a number of large cities, besides numerous smaller ones, are still in the throes of charter reform, while almost every week one or more of our cities adopts the so-called commission plan.

**THE COMMISSION PLAN.** Starting at Galveston, Tex., in 1901, with the central idea of having all the affairs of that flood-wrecked city administered by a single body of five men, combining both legislative and executive functions, less than ten years has seen the commission plan adopted by at least ninety cities, while at the close of 1910 it was in various stages of promotion or adoption by perhaps an even greater number. The plan itself has also grown, so that now it may be said to include as essential features not only the small combined legislative and executive body, each member of which has a city department, but also election at large instead of by wards, direct nominations, elimina-

tion of the party system, civil service, the utmost publicity in all public affairs, the recall, the initiative, and the referendum. In addition, provision is generally made for strict control over the granting of franchises to corporations. As to the small legislative body, it should be noted that it generally comprises all or nearly all the elective officers of the city, except the members of a (usually small) board of education. This is therefore the extreme American type of the "short ballot," being surpassed only by the British system, in which each elector in a given district votes for a single representative on the town or city council and for no other municipal officer.

So far as known, only three cities under the commission plan have more than five commissioners: Fort Worth, Tex. (6); Lewiston, Ida. (7); High Point, N. C. (9). Some 45 cities have five members; 4 have four each; and 21 have three. Of the cities having commissions of three 13 are Kansas cities of the third class and three are Iowa cities of from 3000 to 25,000 inhabitants. Of 73 cities for which information is available the commissioners in 23 are required to give all their time to the city; in 12, part time; and in 38 this point is not covered by the charters. The statistics given have been taken from a paper entitled "A Comparison of the Forms of Commission Government to Date," by Mr. Ernest S. Bradford, of Washington, D. C., read before the National Municipal League. The paper contains the following list of commission cities, corrected to November 1, 1910:

## LIST OF COMMISSION CITIES \*

City	Population† 1910 Census	Date of Beginning Operation	Organized under General Law or Special Charter
<b>Texas:</b>			
Galveston	36,981	1901	Charter
Houston	78,800	1905	Charter
Dallas	92,104	1907	Charter
Pt. Worth	73,312	1907	Charter
El Paso	39,279	1907	Charter
Denison		1907	Charter
Greenville		1907	Charter
Austin	29,860	1909	Charter
Waco	26,425	1909	Charter
Amarillo		1909	Charter
Palestine		1909	Charter
Corpus Christi		1909	Charter
Marshall		1909	Charter
Kennedy		1910	State Law
Aransas Pass		1910	State Law
Harlingen		1910	State Law
Barry		1910	State Law
Tyford		1910	State Law
Port Lavaca		1910	State Law
Marble Falls		1910	State Law
<b>Kansas:</b>			
Leavenworth	19,363	1908	State Law
Wichita	52,450	1909	State Law
Independence	10,480	1909	State Law
Hutchinson	16,364	1909	State Law
Anthony		1909	State Law
Topeka	43,684	1910	State Law
Kansas City	82,331	1910	State Law
Coffeyville	12,687	1910	State Law
Parsons	12,463	1910	State Law
Pittsburg	14,755	1910	State Law
Marion		1910	State Law
Cherryvale		1910	State Law
Iola	9,032	1910	State Law
Wellington	7,034	1910	State Law
Emporia	9,058	1910	State Law
Abilene		1910	State Law
Newton	7,862	1910	State Law
Girard		1910	State Law
Neodesha		1910	State Law
Caldwell		1910	State Law
<b>Iowa:</b>			
Des Moines	86,368	1908	State Law
Cedar Rapids	32,811	1908	State Law
Keokuk	14,008	1910	State Law
Burlington	24,324	1910	State Law
Sioux City	47,828	1910	State Law
Marshalltown	13,374	1910	State Law
Port Dodge	15,543	1910	State Law

City	Population 1910 Census	Date of Beginning Operation	Organized under General Law or Special Charter
<b>Oklahoma:</b>			
Ardmore		1909	Home Rule Charter
Edul		1909	Home Rule Charter
Tulsa		1909	Home Rule Charter
MacAlester		1910	Home Rule Charter
Muskogee	25,728	1910	Home Rule Charter
El Reno		1910	Home Rule Charter
Bartlesville		1910	Home Rule Charter
Sapulpa		1910	Home Rule Charter
Miami		1910	Home Rule Charter
Wagoner		1910	Home Rule Charter
Chickasa		1910	Home Rule Charter
<b>South Dakota:</b>			
Sioux Falls	14,094	1909	State Law
Yankton		1909	State Law
Pierre		1909	State Law
Dell Rapids		1909	State Law
Huron	5,971	1909	State Law
Rapid City		1909	State Law
Vermilion		1909	State Law
<b>North Dakota:</b>			
Bismarck		1909	State Law
Mandan		1909	State Law
Minot		1909	State Law
<b>Minnesota:</b>			
Mankato		1910	Home Rule Charter Under State Law
<b>Wisconsin:</b>			
Eau Claire		1910	State Law
<b>Illinois:</b>			
<b>Massachusetts:</b>			
Haverhill	44,115	1909	Charter
Gloucester		1909	Charter
Lynn	89,336	1909	Charter
<b>Idaho:</b>			
Lewiston		1907	Charter
<b>Colorado:</b>			
Colorado Springs	29,078	1909	Home Rule Charter
Grand Junction	7,754	1909	Home Rule Charter
<b>California:</b>			
Berkeley	40,434	1909	Home Rule Charter
San Diego	29,578	1909	Home Rule Charter
Modesto		1909	Home Rule Charter
Oakland	150,174	1909	Home Rule Charter
<b>Washington:</b>			
Tacoma	83,743	1910	Home Rule Charter
<b>Tennessee:</b>			
Memphis	131,105	1910	Charter
<b>Mississippi:</b>			
Hattiesburg		1910	State Law
<b>Louisiana:</b>			
Shreveport	28,015	1910	State Law
<b>Oregon:</b>			
Baker		1910	Home Rule Charter
<b>Kentucky:</b>			
Lexington	35,099	1910	State Law
<b>North Carolina:</b>			
High Point		1910	Charter
<b>South Carolina:</b>			
Columbia	26,319	1910	State Law
<b>West Virginia:</b>			
Huntington	31,161	1909	Charter
Bluefield		1909	Charter

Total—90 cities, not including Buffalo and Mt. Vernon, (N. Y.), which have voted favorably, but are not yet authorized to install the plan; nor Washington, D. C., and Chelsea (Mass.), which have peculiar types. Cities appearing in some previously published lists, but which upon further examination are found to have only a partial form of commission government, are Beaumont (Texas), Riverside (Calif.), Boise (Idaho), St. Joseph (Mo.), Taunton (Mass.), and several cities in Tennessee.

\* Indicates a city not yet operating under the commission plan, though having voted to do so.

† The population figures, so far as possible, have been added to the original table.

It will be seen that the list includes only two cities which had a population of 100,000 or over by the U. S. Census of 1910, ten having 50,000 or more, and 26 of 25,000 or over. Late in 1910 it was reported that Spokane, Wash., with a population of 104,402 in 1910, had voted for the plan.

As to the success of the commission plan it will be unwise to express more than general opinions until it has longer trial. Galveston adopted it in 1901, Houston in 1905, five other Texas cities in 1907, and the other 82 cities in the list not until within the last three years, while 39 of the 82 cities did not adopt the plan

until 1910. The plan must be tried in some of our larger cities, even larger than the largest of those in the list, before a final conclusion as to its success can be reached. That the plan meets with popular approval is certain. That under it many cities have effected notable reforms in brief periods is undoubted. But how long the popularity and the reforms will last remains to be seen. Nor have we reliable statistics for measuring the results achieved, where statistics, if available would serve that purpose; for while perhaps some of the cities may have established reliable accounting and statistical methods since the commission plan was adopted, few had such before, so comparative figures, either contrasting periods in the same city or one city against another, are unavailable. For a discussion of the commission plan, confined chiefly to Des Moines, Ia., see Hamilton's *The Dethronement of the City Boss* (New York, 1910); Robbins's *Selected Articles on the Commission Plan of City Government* (Minneapolis, 1909), and *The Commission Plan of City Government*, a bulletin issued by the University of Wisconsin in 1910. For further information on municipal government see articles on GARBAGE AND REFUSE DISPOSAL; MUNICIPAL OWNERSHIP; PAVEMENTS AND ROADS; SANITATION; SEWERAGE; SEWAGE PURIFICATION; SMOKE PREVENTION; STREET CLEANING; TAXATION; WATER PURIFICATION; and WATERWORKS; also see articles on the various States and countries.

**MUNICIPAL LEAGUE, NATIONAL.** An organization formed in 1894 for the purpose of effecting improvements in municipal government. The Buffalo meeting of the League, November 14, 15, 16, 17, 1910, was the most largely attended and generally the most effective ever held. Among the important municipal questions considered were: Conservation in Municipalities; Patriotism in Municipal Affairs (which was the topic of the presidential address); Municipal Health and Sanitation; Municipal Reference Libraries; the League's Franchise Policy; the Present Status of Nomination Reform; City Finances, Budgets and Statistics; Corrupt Practices in Municipalities; How to Overtake the Grafters by Municipal Accounting; the Unearned Increment; Operation of Woman Suffrage and its Local Effect; the Education of Foreigners in American Cities; the Liquor Problem; Civil Service Reform in Cities and School Extension. Following the Cincinnati meeting in 1909 a special committee on the latter subject was appointed, with Edward J. Ward, then of Rochester, now of the University Extension Division of the University of Wisconsin, as chairman. During 1910 this committee was busily at work gathering information concerning the wider utilization of school plants. It presented its data in the form of a report, with papers by leading educators and social workers. This report, which excited very active discussion, will be published in a separate volume.

The dominant note of the meeting was the discussion of the "New Municipal Idea" and its various manifestations.

Hon. William Dudley Foulke, of Richmond, Ind., was elected president of the League to succeed Hon. Charles J. Bonaparte. The Vice-Presidents elected were Dr. A. Lawrence Lowell, President of Harvard University, H. D. W. English, President Civic Commission, Pittsburg; Charles Richardson, Philadelphia; Thomas N. Strong, Portland, Oregon; George McAneny, President of

the Borough of Manhattan, N. Y.; Alderman Charles E. Merriam, Chicago; Camillus G. Kidder, New York. The Secretary, Clinton Rogers Woodruff, Philadelphia, and the treasurer, George Burnham, Jr., Philadelphia, were re-elected. Dr. Albert Bushnell Hart, of Harvard, was subsequently made chairman of the executive committee.

On December 31, 1910, there were 2186 members enrolled in the League. There were 219 affiliated organizations, with an enrolled membership of 186,728.

The William H. Baldwin prize for the best essay on "City Government by Commission" for the year 1910 was awarded to Oswald Ryan, Harvard, with honorable mention of Roger F. Hooper of Harvard and E. Clyde Robbins of the State University of Iowa. The subject for 1911 is "The Administration of the Police Department in Some City in the United States with a Population of over 200,000."

**MUNICIPAL OWNERSHIP.** The status of municipal ownership in the United States at the close of 1910, broadly speaking, was that a large percentage of the water-works, including nearly all the larger ones, were owned by the cities which they supplied, while next in order came electric lighting plants, with municipal ownership quite common, but far less general than in the case of water-works, and but rarely extending to the large cities. Few gas-works and practically no street railways are owned by American cities, although such ownership is notable in Great Britain. An extension of the municipal ownership of docks and water terminals was urged by Gen. W. H. Bixby, Chief Engineer, U. S. Army, in an address delivered before the Rivers and Harbors Congress at Washington in December, 1910.

At San Francisco, in January, 1910, the city declared against a bond issue of \$35,000,000 for the purchase of the works of the Spring Valley Water Co., by a majority of 1234, but declared 32,876 to 1607 in favor of a \$45,000,000 bond issue to introduce a supply from the Tuolumne River. Later on, San Francisco voted a relatively small bond issue for a short length of municipal street railway. An injunction against this bond issue was sought from the State Supreme Court, but was denied. In May 1910, Denver, Colo., voted against a 20-year extension of the franchise of the Denver Union Water Co., and for the creation of a Public Utility Commission to deal with the water question. This commission was required to determine the value of the property of the private water company and also the cost of a new plant. The commission was authorized to offer the company \$7,000,000 for its property. Provision was made for an election on September 6, to vote on an \$8,000,000 bond issue for buying and improving the plant of the company, or for building new works. The company refused the offer for its plant. Subsequently the commission estimated the value of the private plant as \$6,400,000 and the cost of an independent plant, to be built by the city, at \$7,318,500. The company sought an injunction against the election and bond issue. The court permitted the election, but virtually enjoined the bond issue, on the real or implied ground that the city was bound to buy out the company at an appraised valuation of \$14,400,000, fixed by a commission of engineers in 1909. This decision came just before the election, but, nevertheless 7032 votes

were cast for the bond issue and only 2334 against it (out of a total registration of 38,495). The court decision went up to the United States Circuit Court of Appeals. At Omaha, Neb., the municipal purchase of the plant of the local water company was made mandatory by the State legislature seven years or so ago. The city contested the appraisal, on the ground that its representative did not agree with the other arbitrators in fixing the price. This and other points have been before the courts for some years, but appear to have been decided in favor of the company during 1910. Certain large municipal ownership questions were involved in the proposed extensions to the rapid transit subway system of New York City, still unsettled at the close of the year (see NEW YORK). These questions involved the terms on which new routes or else extensions of the existing system would be built and operated, with ultimate municipal ownership of the subway in any event.

**MUNRO, DAVID ALEXANDER.** An American editor, died March 9, 1910. He was born in Maryburgh, Scotland, in 1845. He graduated from the University of Edinburgh and shortly afterward came to New York, where he was engaged in the literary department of Harper and Brothers. From 1887 to 1889 he edited *Garden and Forest*, and from 1889 to 1896 was general manager of the *North American Review*. He edited this publication from 1896 to 1899, when he became assistant editor, and held that position until the time of his death. He contributed articles to many papers and periodicals and supervised the collation and transmission of American contributions to the last edition of Liddell and Scott's *Greek Lexicon*, and arranged the *Comparative Greek-English New Testament* for Harper and Brothers. He collaborated with Dr. Schaff in the preparation of his *Companion to the Study of the Greek New Testament*.

**MUNRO, JOHN CUMMINGS.** An American surgeon, died December, 1910. He was born in Lexington, Mass., in 1858 and graduated from Harvard College in 1881 and from the Medical College of that institution in 1885. He began to practice in Boston in 1886 and continued in active practice until his death. He was connected in 1905 with the Harvard Medical School as demonstrator and instructor in surgery, and lecturer. From 1903 until the time of his death he was surgeon-in-chief at the Carney Hospital. He was a member of many medical societies. He was a contributor to Keen's *System of Surgery*.

**MUNSEY, FRANK A.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**MÜNSTERBERG, HUGO.** See LITERATURE, ENGLISH AND AMERICAN, *Philosophy and Religion*.

**MURDOCK, VICTOR.** See UNITED STATES, *Congress*, and KANSAS.

**MURPHY, CHARLES.** See CANADA, *Government*.

**MURPHY, CHARLES F.** See NEW YORK.

**MURRAY, ROSALIND.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**MUSEUM, UNITED STATES NATIONAL.** See UNITED STATES NATIONAL MUSEUM.

**MUSIC.** In all branches of the art of music the first decade of the present century has been a period of intense activity. "Originality at any

cost" seems to have been the watchword of all the younger composers; so much so, that not only established forms, but even fundamental physical laws and art canons are utterly disregarded. In Germany the leaders of the new tendencies are Strauss and Reger; in Italy, Puccini; in France, D'Indy, Debussy, Dukas, Ravel; in Russia, Rachmaninoff and Scriabine. In England Elgar is hailed by many as a new prophet. The American MacDowell has become universally recognized after his death; yet no one has been able to point to anything in this master's works that might characterize him as specifically "American." Among the more important composers that died during the decade are: Verdi, Grieg, Rimski-Korsakoff, Arensky, Balakireff, Reyer, Reinecke, and Martucci.

In England and America the appreciation of good music has made great strides, as is attested by the establishment of permanent symphony orchestras and chamber-music organizations in many of the less important cities. Even a casual glance over the programmes of the so-called "popular" concerts reveals an ever growing demand for the more serious works. Curiosity for the very newest works seems also to have stimulated interest for the older composers, and historical concerts have come into vogue. While in the field of absolute music the retrospect is exceedingly gratifying, it is less so in the field of opera. No one will deny that here also taste and real understanding have made steady progress; but for the promoters of opera the period has been one of stress and storm. The question of singers' salaries originally was of purely local interest to New York, and more especially to the Metropolitan Opera House. With the appearance, in 1906, of Oscar Hammerstein and his Manhattan Opera House, the matter assumed a new aspect. Not only did the excessive salaries soar still higher, but in its eagerness to cripple the rival each institution engaged a larger number of artists than was actually needed. France and Italy soon were seriously affected by the exodus of their best artists to America. In 1908 the more influential of the Italian managers, who also control the operatic situation in South America, entered into a combination against the New York institutions. Their efforts proved futile. Artistically most brilliant the season of 1909-10 at the Metropolitan and Manhattan Opera Houses proved financially crippling to both. Mr. Hammerstein gave up the battle, and sold for two million dollars all his interests and contracts to the rival house. From an artistic standpoint, the four seasons of intense competition have been productive of much good. The ensemble has been raised to a high level of excellence; new and adequate scenery and costumes have been provided; chorus and orchestra have been strengthened both in quantity and quality; the monotony of repertoire has entirely disappeared. In this last respect reform has perhaps been a little too radical. More than one new opera has been presented for no other apparent reason than that it was a novelty. The Metropolitan Company even promised to give some operas in English, and held out hopes for native composers of seeing their works performed in their own country. The very first effect of the cessation of rivalry was a reduction in the number of announced novelties from eight to four.

Even before Mr. Hammerstein had withdrawn, the dissension between the two directors of the

Metropolitan, which had been smoothed over temporarily, had broken out anew. Fortunately Chicago had become desirous of having its own opera company, and Mr. Dippel was transferred to the Chicago company. Thus at the end of the year 1910 there were in the United States three permanent institutions of the first rank devoting their energies to the production of grand opera, in New York, Boston, and Chicago. Instead of working against one another, all three companies have entered into an agreement for the mutual exchange of artists.

#### THE UNITED STATES

**ARTISTS.** Two of Europe's foremost composers (Puccini and Humperdinck) visited the United States in 1910. Both were invited to superintend the rehearsals of their new operas at the Metropolitan Opera House, but neither made any public appearance in an artistic capacity. Mme. Liza Lehmann, who had become famous here through her song cycle, "In a Persian Garden," scored a most emphatic success everywhere with the rendition of her two song cycles, "In a Persian Garden" and "Nonsense Songs." She had the assistance of a quartet of which Mme. Jomelli was the soprano. After an absence of several years Busoni was heard again in recital and with orchestra. Everywhere he made the deepest impression. One critic very appropriately characterized his playing as possessing "the mentality of Bülow, the technic of Liszt, the fire of Rubinstein." Josef Hofmann was satisfied with interpreting the works of the great masters, instead of playing his own works. As an interpreter he need not fear comparison; he amply fulfils the early promise he gave as an infant phenomenon. Xaver Scharwenka delighted his old admirers. While his playing has always been musicianly, it has become more smooth and finished technically. A new comer was the French pianist Adolphe Borchard, who must be classed among the very foremost of the younger artists. He possesses the qualities that characterize the school of the Paris Conservatory (beautiful, singing tone and marvelously clear technic) combined with highly individual, poetic conception. Arthur Friedheim, who has not been heard for many years, proved that he is still the peerless Liszt specialist. Mmes. Szumowska and Bloomfield-Zeissler showed that they are still in fullest command of their remarkable powers. Among the violinists Kathleen Parlow, a young Canadian girl, created a real furor. Her wonderful performance of the difficult Tchaikowski concerto was proof of the possession of all the qualities that make an artist of the first order. While all agree that she is the greatest woman violinist ever heard in New York, there are those who acclaim her the greatest violinist of her sex. A much heralded violinist, Alexander Sebal, made the mistake of playing at his first concert all the twenty-four caprices of Paganini. He exhibited a stupendous technic, but had no opportunity of showing any real musical qualities; for the musical value of those works is extremely insignificant. When Jaroslav Kocian was first heard here, it was generally believed that his leaning was toward technical exploitation of sensational effects. He now returns as a mature and serious artist with an unusually large and sympathetic tone. Macmillen's beautiful playing with the Philharmonic Orchestra convinced those who heard him that he now must be

ranked with the masters of his instrument. Of Kreisler and Elman it need only be recorded that every time they played they drew crowded houses. For some reason or other the past year again was conspicuous for a dearth of cellists.

Only one new artist was heard, Boris Hambourg, a brother of the great pianist. There is a peculiar charm about his playing, a wonderful atmosphere. His tone is not large, but very clear and mellow.

**SONG RECITALS.** In the song recital the offerings of the past year were exceptionally rich and varied. It suffices to mention the names of Dr. Wüllner and Mmes. Schumann-Heink, Sembrich, and Koenen. In Reinhold von Warlich the public made the acquaintance of an artist of rare qualities. The young man possesses a baritone voice of exceptional beauty, which he handles with consummate skill. His interpretations revealed temperament and feeling, and demonstrated his versatility in evoking the most widely varying moods. The name of Alexander Heinemann has long been familiar to music-lovers, and his appearance here amply justified the glowing reports that had preceded him. His rich, sonorous bass voice he handles with a lightness and flexibility that would call forth admiration if exhibited in a soprano. Mme. Kirkby Lunn, long admired on the operatic stage, proved herself equally great in recital, as did also her famous colleague Signor Bonci. One of her recitals Mme. Sembrich devoted entirely to the rendition of folksongs of various nations. The experiment proved a most emphatic success. David Bispham also departed from tradition when he sang a programme of foreign composers in English. Besides appearing in opera Mmes. Nordica and Tetrazzini made extensive concert tours of the country.

**ORCHESTRAL CONCERTS.** The first year of the newly reorganized Philharmonic Society of New York resulted in a deficit of \$90,000. Evidently the promoters had primarily made their plans with a view toward the artistic success. If such was the case their object has been achieved, for everywhere the playing of the orchestra under Mr. Mahler called forth unqualified admiration. In order to place the organization upon a sound business basis a well known impresario was engaged to look after the financial affairs. The first step was a reduction of the subscription price to all the different cycles of concerts.

An important change was made in the personnel of the Boston Symphony Orchestra. Its famous concert-master, Willy Hess, resigned to fill the position of the late Karl Halir at Berlin. Mr. Hess's successor, Anton Wittek of Berlin, introduced himself with the Beethoven concerto, and at once made a deep impression.

The excellent Pittsburgh Symphony Orchestra was disbanded owing to the lack of a sufficient guarantee fund. Immediately the Pittsburgh Orchestra Association was formed by a number of music-loving citizens with the object of organizing a new orchestra for the season of 1911-12. In the meantime most of the members of the original Symphony orchestra were engaged, and a temporary organization under the conductorship of Carl Bernthaler, known as the Pittsburgh Festival Orchestra, was formed to play a series of thirty concerts until a new permanent orchestra could be established. By the end of the year the guarantee fund was still considerably short of the amount necessary.

Consequently the chief promoters, upon whom the deficit of the former orchestra had fallen, withdrew, and the city was left without an orchestra of its own, entirely dependent upon concerts given by visiting organizations.

Reports from Chicago indicate that the orchestra situation there also leaves very much to be desired. The Theodore Thomas Orchestra (Frederick Stock) has been severely criticised for slovenly performances, and the charge is made that among its instrumentalists there are too many inferior players. The management evidently acted upon the suggestions made, for reports of the latest concerts record very marked improvement. The newly reorganized Cincinnati Symphony Orchestra, under Leopold Stokovsky, reports a most satisfactory year, as well as almost all other symphony societies. The Seattle Orchestra, under Henry Hadley, has increased the number of performers and doubled the number of concerts. Among several newly established orchestral associations the most important is the one at Altoona consisting of sixty players under B. L. de Roe, a former member of the New York Symphony Orchestra.

The Imperial Russian Court Balalaika Orchestra under its leader W. W. Andreeff gave some concerts of Russian folk music. The orchestra consisted of thirty performers who played only on their native instruments, the balalaika and domra.

In novelties for orchestra the year was an exceptionally poor one. Only one new work of real importance was heard, Scharwenka's fourth concerto for piano and orchestra in F minor. It was played by the composer himself at the Philharmonic Society's concert of November 27, under the direction of Gustav Mahler. The work is in no way revolutionary, but cast in the classical form. The themes are beautiful and developed in masterly style. In real musical value the work comes near the composer's first concerto in B flat minor, which still remains Scharwenka's greatest work. Carl Pohlig with his Philadelphia Symphony Orchestra introduced a new symphony by Fritz Volbach in B minor, which proved pleasing music. Frederick Stock with the Theodore Thomas Orchestra of Chicago played his own symphony in C minor, a work that impresses more by its masterly treatment than by genuine inspiration. A comedy overture, "Puck," by Gustav Strube was brought out by the Boston Symphony Orchestra under Max Fiedler.

**FESTIVALS.** The fifty-third annual Worcester Music Festival took place under the direction of Arthur Mees and Gustav Strube. The principal work produced was Berlioz' *La Damnation de Faust*. Granville Bantock's *Omar Khayyam* made a favorable impression. At the Cincinnati Biennial Festival the chief works performed were Handel's *Judas Maccabæus*, Beethoven's *Missa Solemnis*, Berlioz's *Les Troyens à Carthage*. The festival was under the direction of Frank van der Stucken.

From an artistic standpoint the most important festival was the second annual California Bach Festival at Berkeley, under Frederick Wille. The work performed was The Passion according to St. Matthew. The production was in all respects a model one. Mr. Wille was the founder and director of the Bethlehem Bach Festivals of former years, which soon became musical events of national fame. The California Festivals have taken the place of and form the

continuation of the Bethlehem events. The Maine Music Festival occurred at Portland and Bangor under William Chapman, and was open to the same objections that have been raised in former years: the programmes are too mixed. One of the concerts was devoted entirely to excerpts from operas. For the first time in its history Denver arranged a music festival. Strictly speaking, it was not a festival, but a series of symphony concerts with excellent programmes. The Minneapolis Symphony Orchestra under Emil Oberhoffer was assisted by such artists as Busoni, Wüllner, and Czerwonky.

**OPERA.** At the Metropolitan Opera House 175 performances were given from a repertoire of 44 operas by 24 composers. According to nationality these were divided as follows: Italian, eighteen works by nine composers; German, sixteen works by six composers (but Gluck's *Orfeo* and Flotow's *Stradella* in Italian; and Gluck's *Armide* in French); French, seven works by six composers; Russian, Bohemian, and American, each one work by one composer (but both Russian and Bohemian works in German). Wagner, represented by nine works, led with thirty-three performances. Next in order came Puccini, four of whose works achieved twenty-three performances. Third ranked Verdi, six of whose works were given twenty-two times. Puccini's *La Bohème*, Mascagni's *Cavalleria*, and Leoncavallo's *Pagliacci* each had ten representations; Wagner's *Tannhäuser*, nine; Wagner's *Walküre*, Verdi's *Aida* and *Trovatore*, Puccini's *Madame Butterfly*, seven; Gluck's *Orfeo*, Gounod's *Faust*, Ponchielli's *Gioconda*, six. Among the year's quasi-novelties were the revivals of two operas that had not been heard in many years. Flotow's *Stradella* failed to arouse interest. Weber's *Freischütz* was put on at the very end of the season, and it was apparent that there had been no time for sufficient preparation.

In respect to the number of novelties produced the past year eclipses all records; not less than seven works had their first representation in America. Franchetti's *Germania* (January 22), under Toscanini with Caruso and Destinn in the principal rôles, had a splendid performance, but aroused only passing interest. The music lacks real inspiration. Several passages of the text offer fine opportunities, but the composer fails to rise to the situation. Bruneau's *L'Attaque du Moulin* (February 8), under Tango with Noria, Delna, and de Segurrola, was excellently rendered, but proved a failure. The text is decidedly better than the music, which is lacking in vitality and power of characterization. For the production of Tchaikowski's *Pique Dame* (March 5) Gustav Mahler was specially engaged. In the cast were Destinn, Meitschik, Gluck, Slezak, and Forsell. The performance was superb, and the music made a profound impression. To one who is familiar with Tchaikowski's orchestral works the score of this opera presents no new effects. The music follows the dramatic situation faithfully throughout. The themes are characteristic and expressive, the orchestral colors lavish and glowing. Yet in spite of its wonderful music *Pique Dame* is not likely to become a favorite with the general public. The subject is too gloomy, and it is impossible to feel sympathy for the hero. While Converse's *The Pipe of Desire* (March 18) proved practically a failure it nevertheless achieved a double distinction. It is the first work by an American composer ever



**ENGELBERT HUMPERDINCK**



**GIACOMO PUCCINI**



Photo by Pach Bros., New York

**VICTOR HERBERT**



**ARTHUR NEVIN**

**FOUR COMPOSERS PROMINENT IN 1910**

४४०

performed, and the first opera ever sung in English on the stage of the Metropolitan Opera House during the regular season of grand opera. Mr. Hertz conducted, and all the rôles were filled by the American singers of the company. The fundamental defect of the opera is the absurd text. The music lacks individuality; it is the Wagner idiom pure and simple. The next novelty, which was given on the opening night of the season (November 14), was one whose première took place in the year 1777. Gluck's *Armide*. The performance under Toscanini with Fremstad and Caruso was a model one even in the minutest details. If the work had been given as one in a historical cycle showing the development of opera, one could understand the time and expense required for such a production. Whatever may have been the reason for producing a work so entirely remote from modern sympathies, the management deserves great credit, and has earned the gratitude of a few serious students of musical history for offering them an opportunity of witnessing a model representation of a work that will always remain a landmark in the history of opera.

Puccini's *Girl of the Golden West* was produced on December 10 for the first time on any stage, under the direction of Toscanini with Destinn and Caruso. The composer, who had personally supervised the rehearsals, was present. The event derived a special significance from the fact that for the first time the initial performance of an opera by a famous European composer took place in America. Furthermore, the première was scheduled for a special night outside of the regular subscription, and the prices of admission were doubled. The second performance one week later occurred under the identical conditions. To all appearances the work was a most emphatic success. The composer and all concerned in the production received tremendous ovations. The cold fact is that the *Girl of the Golden West* is musically the least inspired of Puccini's operas; and for the simple reason that the text is not only not fitted, but not even fit, for musical setting. A realistic or "veristic" lynching scene has no place in a serious work of art.

A work of very different calibre, and one that gave unalloyed delight, is Humperdinck's *Königskinder*, which was brought out in the presence of the composer under Hertz with Farrar and Jadlowker on December 28. The American première was also the first performance on any stage. As in *Hänsel and Gretel* the composer has again drawn his inspiration at the inexhaustible spring of the German folksong. The simple charm and ethereal beauty of the music not only carried the work to instantaneous and emphatic success, but also gave it the assurance of a long operatic life, at least in the repertoire of German theatres. In connection with *Königskinder* one fact seems worth recording: The work had been promised for the preceding season as one of a number that were to be sung in English. After Mr. Hammerstein's retirement it was announced that the opera would be sung in the original German.

A new departure, and one that proved successful beyond all expectations, was the engagement of the famous Russian dancers Pavlova and Mordkine, who appeared in a number of ballets. The policy of expansion, which had been prompted by a spirit of rivalry, and which had also proved disastrous, was abandoned. The

special performances at the New Theatre were discontinued; orchestra, chorus, and the number of principals were greatly reduced, so as to meet the actual needs of the institution. The dual directorship with divided responsibility came to an end, and Signor Gatti-Gasazza was placed in sole and absolute control. Among the principal artists that appeared during the year were: Mmes. Nordica, Melba, Destinn, Gadski, Fremstad, Movena, Weidt, Gluck, Alda, Farrar, Rappold, Pasquale, Fornia, Novia, Homer, Delna, Flahaut, Wickham; Messrs. Caruso, Slezak, Jörn, Burrian, Constantino, Jadlowker, McCormack, Renaud, Forsell, Amato, Scotti, Pini-Corsi, Didur, Gianoli, Blass, Goritz, Hinkley, Whitehill, Hinshaw. The conductors were: Toscanini, Hertz, Podesti, Tango, Pasternack, and Mahler (as guest).

The Manhattan Opera House closed its doors on its fourth and last season on March 26. From January to March 73 performances were given from a repertoire of 23 operas by 14 composers. According to nationality these were distributed as follows: French, 12 works by 8 composers; Italian, 9 works by 5 composers; German, 2 works by 1 composer (both in French). As in the preceding year Massenet led with 13 performances and 4 works; Strauss came next with 11 performances of 2 works; Verdi ranked third with 10 performances of 4 works. Two novelties were produced. Massenet's *Griselidis* (January 19), under de la Fuente with Mary Garden and Dalmores, had only a lukewarm reception, although it was splendidly given. The music is purely declamatory. Massenet's inspiration for melodic invention seems to have forsaken him. On the other hand Strauss's *Elektra* (February 1), under de la Fuente with Mazarin, Gerville-Réache, and Huberdeau, achieved a sensational success. The unqualified admirers of Strauss regard *Elektra* not only as the greatest work of this composer, but as the greatest in all operatic literature. More moderate critics see in *Elektra* a further step toward license, cacophony, accumulation of brutal effects, and a breaking away from all that has hitherto been regarded as beautiful in music.

A quasi-novelty was Delibes's *Lakmé* (March 21), which had not been heard for fourteen years. As already stated elsewhere, Mr. Hammerstein sold his interests to the Metropolitan Company. Early in the year he had already given up his Philadelphia Opera.

The Boston Opera Company gave 94 performances from a repertoire of 29 works by 19 composers. Practically the season consisted only of French and Italian opera. The German performances were given on the exchange plan by the Metropolitan company of New York. Puccini dominated with 22 performances of 3 works. Three novelties (i. e. not only for Boston, but for America) were presented. Debussy's *L'Enfant Prodigue* (November 16) made a decided impression. The music is strongly individual, beautiful, and extremely refined. Many passages foreshadow the composer of *Pelléas et Mélisande*. Less success attended the première of Laparra's *Habanera* (December 14). The music is too monotonously sombre. A rather strange experiment was the production of only the closing scene of Rachmaninoff's *Miser Knight* (March 9) in a double bill. It was sung in the original Russian by Baklanoff who created the rôle in Moscow. The rather harsh and gloomy music at first repelled the audience, but gained

on successive hearings. For the French operas a special conductor was engaged, André Caplet, a young man of temperament and authority.

The Chicago Opera Company was launched on its career on November 3 with a superb performance of *Aida* under the direction of Campanini. Up to the end of the year 53 performances were given from a repertoire of 18 operas by 12 composers. Verdi and Puccini, each represented by four works, led with ten performances each. The operas given most frequently were Verdi's *Aida* and Charpentier's *Louise*, each four times. Germany was represented only by Strauss, whose *Salome* aroused such opposition that it was withdrawn after two performances. Shortly after its premiere in New York Puccini's *Girl of the Golden West* was also given in Chicago (December 27). Puccini's publisher, Tito Ricordi, had personally superintended the rehearsals and employed the same means of advance advertising as had been employed in New York. The demonstrations at the Chicago house rivaled those of New York. Otherwise the repertoire presented was the same as that of the Manhattan Opera House. In fact, Mr. Hammerstein's former artists form the nucleus and mainstay of the Chicago Opera. Foremost among these stands the dominating personality of Campanini, invested with almost autocratic power. His assistant is Signor Parelli. Among the singers are: Mmes. Garden, Osborn-Hanna, Zeppilli, de Cisneros, Bressler-Gianoli; Messrs. Zerola, McCormack, Dalmores, Dufranne, Huberdeau, Sammarco, Venturini, Daddi.

Owing to the generosity of Frank S. Meighen Montreal now has its permanent opera company, which began its career on October 31 with Puccini's *Tosca*. M. Jeannotte is the general manager, Signor Jacchia the musical director. The institution has also entered into an arrangement for the exchange of artists with the Boston and New York companies.

#### EUROPEAN COUNTRIES

**GERMANY.** An event that caused considerable excitement in musical circles, especially in those of Berlin, was the premiere at the Royal Opera of *Poia*, a work by the American composer Arthur Nevin (April 23). The American colony had turned out in full force to give their countryman an ovation. But the press had already prepared beforehand an equally strong opposition and won over a considerable portion of the public. The true cause of this opposition had nothing to do with Mr. Nevin's music, but was purely revenge directed against the management for what the critics regarded for several years past as unjust discrimination against native talent in favor of American singers. To the shame of the Berlin critics be it recorded that none of them wrote an impartial review. By command of the Emperor several repetitions were given, and it then became apparent that the work achieved a moderate success proportionate to its real merit. Otherwise the season of the Royal Opera was uneventful owing to the fact that the historic building erected by Frederick the Great was closed for several months because of repairs. It was reopened in December with a splendid performance of *Die Meistersinger*. At the Komische Opera a young Pole, Ignaz Waghalter, leaped into fame at one bound. The two-hundredth performance of D'Albert's *Tiefland* was to be made a festival occasion. At the last moment the only conductor

who knew the score became ill. Without hesitation Waghalter, who was in the audience, offered his services. He conducted without the score, and achieved such a success that he was at once engaged as principal conductor. During the year most of the novelties were entrusted to him, and he has securely established his reputation as a conductor of the first rank. Among the novelties he brought out was Künneke's *Robins Ende*, a work showing strong melodic invention. The first year of Dr. Alfieri's newly established Volksoper was most gratifying, both artistically and financially. The most emphatic success was scored with the performances of Enna's *Cleopatra*, which had not been heard before in Germany, although it was written ten years ago. The second season of grand opera given by Gura in Berlin must be regarded as a failure. The repertoire consisted almost exclusively of Wagner's works, but the performances were generally mediocre and the prices too high.

The Morwitz Opera, devoted to the production of lighter works, passed out of existence, but its place was at once filled by the Gottschied Opera. The important event at the Leipzig Opera was the local premiere of *Elektra*, which was received rather with surprise than enthusiasm. The season closed with a Verdi cycle during which seven works were given. A novelty that had a cordial reception was *Der Talisman* by an English woman composer Adela Maddison. At Dresden Baron von Kaskel's *Der Gefangene der Zarin* achieved a great success. A very interesting and most unusual experiment was tried at the little city of Zoppot in western Prussia. Wagner's *Tannhäuser* was given in the open air in a wild forest. All reports agree that the choral portions, and especially the Pilgrims' Chorus, were overwhelming. A committee has been formed to arrange for the production of other works suitable for such surroundings.

Of orchestral concerts there was no dearth in any part of the empire. In Berlin Beethoven's ninth symphony was played in that city five times by five different organizations within one week! The Berlin Philharmonic Society under Nikisch established a record for the production of novelties. In Munich the Konzertverein under Ferdinand Löwe gave three cycles devoted to Beethoven, Brahms and Bruckner, during which all the symphonies of those masters were played. At the customary New Year's Day concert of the Gewandhaus in Leipzig Zimbalist appeared as the soloist. This in itself would not need to be specially recorded. But when one considers that for forty consecutive years Joachim was the soloist on this particular occasion, one can see that an unusual honor has been bestowed upon the young violinist. The Russian Balalaika Orchestra under W. Andreeff repeated its triumphs of the preceding year. In Otto Taubmann, the critic of the *Berliner Börsen Courier*, Germany was surprised to discover one of its greatest living composers. Taubmann is now over fifty years old. In 1896 he completed a large choral work, *Eine deutsche Messe*, which he offered to several large societies, and which was always politely returned. Last year the Philharmonische Chor of Berlin under Siegfried Ochs gave a masterly rendition of the score. In the opinion of experts Taubmann's *Messe* is to be ranked with Brahms's Requiem. In Berlin Jan Schoonderbeck gave two interesting concerts to show the development of Dutch music from the year 1225 to the present day. The

programmes were of inordinate length, not less than fifty-two compositions being presented.

In honor of the centenary of Schumann's birth innumerable Schumann festivals were arranged. Of these the most important one was the one held at Schumann's native town of Zwickau, where a newly established Schumann Museum was dedicated. The festival derived a special distinction from the presence and participation of Schumann's famous sister-in-law, Marie Wieck, who in spite of her seventy-five years played with a remarkably clear technic and with the fire of youth. The annual festival of the Allgemeine Deutsche Musikerverein took place at Zurich. The musical offerings were better than they have been for many years. Max Reger's One Hundredth Psalm for soli, chorus, organ and orchestra overshadowed everything else. In June a Strauss festival which lasted an entire week was given at Munich. At the opera house *Feuersnot*, *Salome* and *Elektra* were presented, and the Vienna Philharmonic Orchestra played all of the composer's large orchestral works. The conductors were Strauss, Schuch and Motll. Besides, Munich had a very elaborate Schumann festival and its regular Wagner and Mozart festivals. During the exposition a special festival of modern French music took place, in which Saint-Saëns, Dukas, Fauré and Widor participated. The festival season of Munich was brought to a close with a special performance of Berlioz's *Benuvenuto Cellini* in honor of the French visitors. Another event that practically assumed the proportions of a festival was the première at Munich of Mahler's Eighth Symphony (September 12). The work is of gigantic dimensions, in two parts, and requires an hour and three-quarters for its performance. It is, in fact, no symphony at all, but purely choral work. The first part is a setting of the old hymn, *Veni, Creator Spiritus*, the second of the closing scene of the second part of Goethe's *Faust*. In the production one thousand performers were engaged: seven soloists, a mixed chorus of 500 voices, a children's chorus of 350 voices, an orchestra of 170 players, piano and organ. This enormous apparatus Mr. Mahler directed with marvelous skill, so that it is safe to assert that the tremendous ovation which followed was meant as a tribute to the supreme conductor rather than to the composer. The music reveals no new traits, but emphasizes the usual fault of all of Mahler's works. He often has beautiful themes, but lacks the power of sustaining them through a longer work.

AUSTRIA. Throughout the land the eightieth birthday of the venerable Karl Goldmark was made the occasion for special concerts. In Vienna the Tonkünstler Verein under Nedbal played a complete Goldmark programme, while at the Hofoper the *Queen of Sheba* was given. Strauss and Rachmaninoff celebrated triumphs in concerts with their own works. The Dutch baritone Jan Meschaert won unusual success in three recitals devoted to the songs of Schubert, Brahms, Wolf and Strauss. The French pianiste Mme. Riss-Arbeau played all of Chopin's works in eight recitals. Wanda Landowska aroused great interest with her recitals of the music by composers of the 16th, 17th and 18th centuries. All these works she performed upon the cembalo, on which she showed herself as proficient as she already had shown herself on the piano. A sensation was produced by Erich Korngold, a four-

teen-year old composer, whose pantomime *Der Schneemann* was produced at the Royal Opera. According to reports Lilli Lehmann's voice is coming back in its youthful vigor. During the year she appeared as Norma, Leonore and Isolde, and we are assured that she acted and sang with the freshness and intensity of twenty years ago. At the Royal Opera matters were in bad shape. Ever since Weingartner assumed the directorship in 1908 there has been ever growing dissatisfaction; not with his artistic ideals, but his general policy. The deficit of the past year amounted to over two million crowns, the largest in the history of the institution. With the new year Weingartner will be succeeded by Hans Gregor, director of the Komische Opera in Berlin. Owing to a heavy deficit the Volksoper was obliged to close its doors in the fall.

ENGLAND. It certainly cannot be said that England is indifferent to its native composers. The year's record shows novelties by English composers on the programmes of all the important festival associations. The second Brighton Festival under Josef Sainton was very successful in spite of serious difficulties. Saint-Saëns's *Samson and Delilah* and Verdi's *Requiem* were splendidly given. Perhaps the principal attraction was Sinding's new symphony in E minor, which was conducted by the composer, who on this occasion visited England for the first time. The music is described as very beautiful and typical of the master's individual style. At the sixth Cardiff Triennial Festival the principal works were Mendelssohn's *Elijah*, Brahms's *German Requiem* and Dvořák's *Stabat Mater*. There were also four works in larger forms by English composers, but they made no impression. The Three Choirs Festival at Gloucester upheld old traditions by performing Handel's *Messiah*, Mendelssohn's *Elijah* and *Hymn of Praise*. However novelties of native composers were also heard. The Lincoln Triennial Festival was made the occasion of a worthy Schumann celebration. The event of the Leeds Triennial Festival was the appearance of Rachmaninoff, who conducted a new symphony, and also played his second concerto for piano and orchestra. The season of Mr. Wood's Promenade Concerts comprised sixty-one concerts. Fewer symphonies were played than in former years, but all of Beethoven's were given in chronological order. Out of eighteen novelties eleven were by English composers. Fritz Kreisler introduced Elgar's latest work, a violin concerto, but could arouse no enthusiasm. The work is well written; only it lacks inspiration. A concerto for piano and orchestra by Josef Holbrook, played by Harold Bauer with the London Symphony Orchestra, made a decided impression. It is beautiful, individual and also grateful to the performer. Theodore Stier founded a new organization, the Bechstein Hall Orchestra, whose energies are devoted to the cultivation of older orchestral works of the 17th and 18th centuries. The undertaking met with hearty support.

In the regular season of grand opera at Covent Garden Wagner's works, which had been entirely omitted the year before, were again restored to their regular place. Before the end of the season Richter suffered a nervous breakdown, and Alfred Hertz finished the season. But the chief interest was centered upon the undertaking of Thomas Beecham, who gave three distinct seasons of opera. The first consisted of twenty-two performances during February and March. The

principals were of the first rank, the orchestra of one hundred players of unusual excellence, the repertoire unique and remarkably varied. On the opening night Strauss's *Elektra* was given under Mr. Beecham. This was also the first performance of the work in England. Later performances were conducted by the composer. As everywhere else the opera divided musical opinion. The other novelties of this brief season were Delius's *Romeo and Juliet in the Village* and Ethel Smythe's *The Wreckers*, both in English. There was also a revival of Sullivan's *Ivanhoe*. The second season was given in May and June, and was devoted to opera comique in English. The novelties were Stanford's *Shamus O'Brien*, which scored a decided success, and Strauss's *Feuersnot*, which pleased more than *Elektra*. The third season began in October. The first novelty was D'Albert's *Tiefand*, a work that on this occasion again demonstrated its power to please. Leroux's *Le Chimineau* also proved a successful venture. The third novelty was again a sensation. It was Strauss's *Salome* (December 8). Considerable difficulty was encountered in overcoming the objections of the censor. At last it was agreed to omit the kissing of the head. Also the name of Jochanaan was stricken from the rôle, and Ein Prophet substituted. Curiosity was a large factor in drawing a crowded house at the première. At later performances the interest declined considerably. All in all Mr. Beecham in his first opera venture has established a record that is not likely to be equaled anywhere. The Moody-Manners Company gave the usual season of grand opera in English. As a novelty Debussy's *L'Enfant prodigue* was given and received with marked favor.

**FRANCE.** The past year developed a perfect rage for historical cycles. The impetus seems to have been given by Bach's works, with which the general public is only now becoming acquainted. In fact, the first important event of the year was the first performance at Paris of Bach's *Easter Cantata* under Messager. The Société Musicale gave eight historical concerts, at each of which an entire musical epoch was represented. Two concerts devoted, one to the older, the other to modern British composers, illustrated by explanatory lectures by M. Calvocoressi, were given by the British Concert Society. Albert Carré gave a series of Saturday matinées showing the development of music beginning with the Trouvères songs of the 12th and 13th centuries. The Concerts Colonne (founded 1873) celebrated their one thousandth concert with a programme devoted to Beethoven. Pierné conducted the Ninth Symphony, and Kreisler played the violin concerto. At the last Colonne concert Gustav Mahler conducted his Second Symphony. His art and personality carried the audience by storm. The Sunday concerts throughout the year were dominated by Wagner. Fashion has succeeded in banishing the master from the opera, but the public demands his music. A new society, La Société Musicale Indépendante, with Fauré as president, was founded for the purpose of producing works by unknown young composers of talent. Dukas and Ravel are also actively interested. The first concert occurred April 20.

The operatic event of the year was the appearance at the Grand Opéra of the entire company of the Metropolitan Opera House of New York. It was admitted that such excellence in

all the principals and such perfection in the ensemble were a revelation to Paris. Perhaps the greatest impression was produced by Toscanini's conducting without a score. Originally fifteen performances had been announced, but on demand two more were added. Although the high New York prices were doubled, the house was completely sold out for every performance. While the artistic success was overwhelming, but expected, the financial success surpassed the most sanguine hopes, for a clear profit of \$20,000 was realized. In the fall, during the regular season, Mary Garden and Nordica appeared with emphatic success in special performances of *Salome* and *Tristan und Isolde*, respectively. At the Opéra Comique Rousseau's *Leone* was only moderately successful; while Ganne's *Hans le joueur de flûte* and Pierné's *On ne badine pas avec l'amour* proved good drawing cards. Bloch's *Macbeth* seems to mark the furthest step in the direction of cacophony and brutal realism. The general impression was summed up in the words of one critic: "This is musical barbarism." The director Carré also gave a historical cycle conducted by Hasselmann. Grétry's *Richard, Cœur de Lion*, Pergolese's *La Serva Padrona* and Méhul's *Josef en Egypte* were given so far, and met with extraordinary success. Massenet's new opera *Don Quichotte* at its première at Monte Carlo was received with considerable enthusiasm.

One event of special interest which occurred at St. Petersburg must be recorded. While the rest of the musical world celebrated the Chopin centenary a year in advance, Russia observed the correct date, as established by recent researches. On February 22 a special concert was given, at which Josef Hofmann played both Chopin concertos. Liapunoff had specially composed a symphonic poem on themes from Chopin's *Berceuse* and the folk-tune which Chopin used in his A-minor mazourka. Balakireff contributed a suite written upon themes from Chopin's works.

**MUSICAL EDUCATION.** See UNIVERSITIES AND COLLEGES.

**MUSICAL FESTIVALS.** See MUSIC.

**MUTTON.** See MEAT AND MEAT INSPECTION.

**MUTUAL INSURANCE.** See INSURANCE.

**MYERS, G.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**NABUCO, JOAQUIM.** Brazilian Ambassador to the United States, died January 17, 1910. He was born in Recife, Brazil, in 1849. He was a son of the late Senator Nabuco, chief of the Liberal party in Brazil during the period of Dom Pedro's second reign. He studied at the University of Brazil and received a degree from the faculty of law in 1871. In 1876 he was appointed attaché to the Brazilian Legation in Washington. On the death of his father in 1878 he was elected to Parliament and for years devoted himself to the cause of the abolition of slavery. He visited several foreign countries and went to Rome in 1888 to obtain the support of the Pope in the abolition of slavery. He was closely identified with the imperial dynasty and in 1889 when the republic was proclaimed he kept apart from the general movement which led the old monarchical parties to accept the new régime. During this period he wrote several books one of which is a constitutional history of the reign of Dom Pedro II. Losing



**RICCARDO MARTIN**



**GERALDINE FARRAR**



**MARY GARDEN**



**OLIVE FREMSTAD**

**FOUR OPERA SINGERS PROMINENT IN 1910**

1750

hope in the restoration of the monarchy in Brazil he reconciled himself to the new order and in 1899 accepted an invitation from the republican government to take charge of the settlement of the boundary question between Brazil and Great Britain. In 1901 he was appointed Brazilian Minister to England. On the settlement of the boundary question he was selected in 1905 as Ambassador to the United States and held that position until the time of his death. He was president of the 3d international conference at Rio de Janeiro, and in 1906 was a member of The Hague permanent court of arbitration, of the Brazilian Academy of Letters and several other societies. He was perhaps the most prominent among the Latin-American diplomats and was highly esteemed by President Taft.

**NATAL.** A province (since May 31, 1910) of the Union of South Africa (q. v.); formerly a British colony. Provincial capital, Pietermaritzburg.

**AREA, POPULATION, ETC.** Total area, estimated at 35,371 square miles. Total population (1904), 1,108,754 (whites, 97,109); estimated December 31, 1908, 1,206,386 (whites, exclusive of military, 91,443). Pietermaritzburg had (estimate December 31, 1908) 31,230 inhabitants; Durban (Port Natal), 60,244. European pupils in government and inspected schools (1908), 12,437; schools for natives, 168, with 14,056 pupils; schools for East Indians, 26, with 2411 pupils.

**PRODUCTION.** Of the total area of Natal, 2,436,886 acres have been reserved for native occupation; about 6,200,000 have been acquired by Europeans, 112,000 by natives, and 13,500 by Indians; 170,000 have been reserved for townships; 1,950,000 are in process of alienation; and 1,127,614 remain unalienated. Area under cultivation by Europeans, 390,209 acres; by natives, 460,000; by Indians, 35,000; total, 885,209. Area (European) under staple crops in 1908: 139,414 acres under corn, yield 132,854,100 lbs.; sugar-cane, 14,627 acres, 71,664,000 lbs.; kaffir corn, 6486 acres, 5,356,403 lbs.; tea, 5502 acres, 3,278,464 lbs. Potatoes, beans, tobacco, and cotton are grown. There are under orchards, 35,912 acres. Stock-raising is carried on in the highlands. Livestock (1908): 32,177 horses, 220,413 cattle, 765,377 sheep, 68,427 goats, 25,677 swine. The African coast fever has killed off great numbers of cattle in recent years. There are great forests of valuable timber. There are extensive coal fields, yielding (1908) 1,669,774 tons valued at £737,170. Of this output 553,157 tons were exported, 710,777 bunkered, 254,166 consumed by the railways. Other minerals are asbestos, copper, fireclay, gold, graphite, gypsum, iron, manganese, etc. Phosphate deposits have been found.

**COMMERCE, FINANCE, ETC.** Commercial and financial totals are given for three years below, trade for calendar years and financial statistics for fiscal years ending June 30:

	1906	1907	1908
Imports . . . . .	£ 9,705,256	£ 8,704,222	£ 7,903,412
Exports . . . . .	10,408,707	10,049,132	9,622,474
Revenue . . . . .	3,665,089	3,471,932	3,510,350
Expenditure . . . . .	3,673,972	3,681,914	3,689,752
Debt . . . . .	19,484,143	20,760,992	21,135,534

Leading imports (1908): haberdashery, etc., £605,012; machinery, £569,284; clothing, £331,831; cottons, £323,873; cereals, £320,720; hardware, etc., £286,781; liquors, £168,523. Exports: Bar gold from overland, £1,002,407; coal (bunker and cargo), £714,670; wool, £659,480; hides and skins, £145,897; barks, £133,509; angora hair, etc., £47,375.

Length of railways open (1908), 976 miles, all government owned. Telegraph lines, 1976 miles; wires, 6909; telephone lines, 186; wires, 2146; telegraph offices, 212; post-offices, 387. Vessels entered, 972, of 2,507,186 tons; cleared, 971, of 2,510,898.

**GOVERNMENT.** The province is administered by an administrator (1910, C. T. Smythe), aided by a provincial council, elected for three years. There is an executive committee of four members.

**ZULULAND** (10,461 square miles) and the **NORTHERN DISTRICTS** territory (6931 square miles) are annexed to Natal.

The Prime Minister, Mr. Moor, opened his political campaign by announcing squarely a non-party, non-racial policy as to the Union. The Union ought to protect every industry that was established in South Africa. Its ideals should be a coöperation for making South Africa a white man's country. See **SOUTH AFRICAN UNION**.

**NATIONAL ACADEMY OF DESIGN.**

See **DESIGN, NATIONAL ACADEMY OF**.

**NATIONAL ACADEMY OF SCIENCES.**

See **SCIENCES, NATIONAL ACADEMY OF**.

**NATIONAL BANKS.** On September 1, 1910, there were in the United States 7173 national banks with aggregate resources of \$9,826,181,000. Among these resources were: loans and discounts, \$5,467,160,000; United States bonds to secure circulation and United States deposits, \$726,550,000; other bonds and securities, \$879,000,000; banking property, \$213,769,000; due from other banks and reserve agents, \$1,214,916,000; gold and gold certificates, \$442,974,000; other cash items, \$193,558,000. Among the liabilities were: capital stock, \$1,002,735,000; surplus, \$648,268,000; undivided profits, \$225,769,000; circulation outstanding, \$674,821,000; individual deposits, \$5,145,658,000; due to other banks, \$1,906,044,000. About ninety-two per cent. of the United States bonds represented deposits to secure circulation. Among other bonds were included State, county and municipal bonds, \$187,474,600; railroad bonds, \$289,634,000; and other public-service corporation bonds \$161,061,000. The loans, which represented about fifty-five per cent. of the total assets, were divided as follows: on demand, secured by one- or two-name paper, 9.6 per cent.; on demand, secured by stocks and bonds, 17.2 per cent.; on time, secured by two or more name paper, 33.7 per cent.; on time, secured by single name paper only, 19.5 per cent.; on time secured by stocks, bonds, or mortgages, 20.0 per cent. Almost one-fifth of all the loans were made by New York City banks, and 26.16 per cent. by the banks of New York, Chicago, and St. Louis. National banks received an average of 7.33 per cent. on time loans and 7 per cent. on demand loans. They paid an average of 2.35 per cent. interest on deposits subject to check; and 3.56 per cent. on savings deposits. The total of such interest for the year was \$53,175,000.

Since the panic of 1907 when New York City banks were found to be about \$25,000,000 short of the required legal reserve against deposits, especial interest was attached to the reserve of national banks. The reserve law was changed on May 30, 1908. In determining the deposits against which reserve must be held there is first ascertained the net balance due to other banks; to this is added dividends unpaid, individual deposits, and deposits of the United States disbursing officers. From this total are deducted the following: checks on other banks in the same place, exchanges for the clearing house, bills of other national banks, and the amount due from the treasurer of the United States. Central city banks must have on hand twenty-five per cent. of the remainder in legal money; banks in other reserve cities must have at least  $12\frac{1}{2}$  per cent. on hand and not more than  $12\frac{1}{2}$  per cent. with central reserve banks; banks elsewhere must have a fifteen per cent. reserve, of which at least two-fifths must be cash on hand. In any case the redemption fund deposited with the treasurer of the United States, amounting to five per cent. of the outstanding circulation, is credited as a part of the reserve. Taking national banks as a whole the lawful money reserve against the more than five billions of deposits was between 21.21 per cent. and 21.61 per cent. during the year. Of this 13.4 per cent. was cash in bank, 7.04 per cent. funds held by reserve agents, and the small remainder equalled the redemption fund. All grades of banks held more than the legal reserve at the time of all six calls for returns by the comptroller, except that central reserve city (New York, Chicago and St. Louis) banks were slightly below during the early months. One of the newer policies of the comptroller is to prevent such violations of the national banking law.

The Comptroller of the Currency, Lawrence O. Murray, continued his policy of introducing a stricter examination of national banks. During the summer, schools of instruction for bank inspectors and examiners were held. The comptroller continued to urge the examiners to a more faithful performance of their duties. He stated that while most of them succeeded in having irregularities in banking practices quickly corrected, some did so very slowly or not at all. On September 7, he ordered the transfer of twenty bank examiners, or one-fifth of the total number, to new fields. This transfer had been preceded by only a few days by an unexpected call for statements from national banks. The reason given for this unexpected call was that heretofore statements have been asked for so regularly that bank officials could prepare for them. These policies indicated the intention of the Comptroller to bring about a much closer responsibility of the banks to the Treasury Department.

In his annual report Secretary of the Treasury MacVeagh recommended a law permitting national banks to establish branches in foreign countries. The object of this is to facilitate the international exchanges of American merchants and to increase American commercial independence. He also pointed out that national banks do not compete equally with State banks and trust companies on account of the legal limitations of their loaning power and functions. He could see no reason why national banks should

not be authorized to develop savings-bank activities and the special work now controlled by trust companies. He pointed out that these latter compete with national banks, but suffer from no competition by national banks.

For the fiscal year ended June 30, 1910, there were 9 national bank failures, with liabilities of \$9,111,000 and assets of \$8,170,000. The liabilities were nearly three times those of the fiscal year 1909 but only 21 per cent. of those of 1908. The comptroller stated in his annual report that failures "have been almost wholly due to incompetent or reckless management and persistent violations of the banking law." He said, "It is the present comptroller's earnest purpose to get out of the national banking system every bank which is managed in such a careless, reckless, speculative or incompetent manner as to endanger the safety of its depositors." See BANKS AND BANKING.

**NATIONAL CIVIL SERVICE REFORM LEAGUE.** See CIVIL SERVICE.

**NATIONAL CONFERENCE OF CATHOLIC CHARITIES.** See CHARITY.

**NATIONAL CONFERENCE OF JEWISH CHARITIES.** See CHARITY.

**NATIONAL CONGREGATIONAL COUNCIL.** See CONGREGATIONALISTS.

**NATIONAL CONSERVATION ASSOCIATION.** See CONSERVATION.

**NATIONAL COUNCIL.** See CONGREGATIONALISTS.

**NATIONAL EDUCATION SOCIETY.** See EDUCATION IN THE UNITED STATES.

**NATIONAL EMPLOYMENT EXCHANGE.** See LABOR EXCHANGES.

**NATIONAL FARM HANDS' ASSOCIATION.** See AGRICULTURE.

**NATIONALIST PARTY.** See GREAT BRITAIN; INDIA, BRITISH; EGYPT.

**NATIONAL MONETARY COMMISSION.** This commission of nine Senators and nine Representatives, under the chairmanship of Senator Aldrich of Rhode Island, was authorized by the Aldrich-Vreeland Emergency Currency Act of 1908. It engaged a great corps of experts to carry on special investigations into the banking and currency history of all advanced countries. Besides the publication of these reports, which constitute a most valuable library on banking and currency, the commission did very little to advance the cause of monetary reform during the year. For statement by Senator Aldrich see article on CENTRAL BANK. This dilatoriness was the cause of some criticism both of the policy and the sincerity of the commission.

The following is a partial list of the publications of the commission, the authors including American and foreign experts: Interviews on the banking and currency systems of England, France, Germany, Switzerland, and Italy (541 pp.); Statistics of Great Britain, Germany, and France, 1867-1908 (354 pp.); The credit of nations and the trade balance of the United States (213 pp.); Fiscal systems of England, France, Germany, and the United States (86 pp.); Notes on the postal savings-bank systems of the leading countries (123 pp.); The discount system of Europe (46 pp.); Bank acceptances (20 pp.); Statistics of the United States (280 pp.); Special report from the banks of the United States (90 pp.); Laws of

the United States concerning money, banking, and loans, 1778-1909 (812 pp.); Digest of state banking laws (746 pp.); The first and second banks of the United States (311 pp.); State banking before the Civil War (338 pp.); State banks and trust companies since the passage of the National Bank Act (260 pp.); Bank loans and stock exchange speculation (in preparation); The origin of the national banking system (213 pp.); History of crises under the national banking system (484 pp.); The use of credit instruments in payments in the United States (229 pp.); The Independent Treasury System of the United States and its relations to the banks of the country (399 pp.); Seasonal variations in the demands for currency and capital (600 pp.); Clearing house methods and practices (335 pp.); Suggested changes in administrative features of the national banking laws (374 pp.); History of the national bank currency (20 pp.); The history of banking in Canada. (310 pp.); The Canadian banking system (191 pp.); Interviews on the banking and currency systems of Canada (209 pp.); The English banking system (294 pp.); History of banking in England (in preparation); Evolution of credit and banks in France (267 pp.); The Bank of France in its relation to national and international credit (181 pp.); The French banking system (in preparation); The history and methods of the Paris Bourse (275 pp.); The Reichsbank, 1875-1900 (362 pp.); German Imperial banking laws (330 pp.); The great German banks and their concentration in connection with the economic development of Germany (about 620 pp.); Miscellaneous articles on German banking (478 pp.); The German Bank Inquiry of 1908 (Vol. I, 1162 pp.; Vol. II, about 1000 pp.); Renewal of Reichsbank Charter (268 pp.); The Swiss banking law (269 pp.); Italian banks of issue (about 350 pp.); The Swedish banking system (248 pp.); The National Bank of Belgium (238 pp.); The banking system of Mexico (284 pp.); Banking of Russia, Austria-Hungary, Holland, and Japan (about 200 pp.); Financial Diagrams (24 diagrams in color). These publications may be obtained from the Government Printing Office. See **CENTRAL BANK**; **FINANCIAL REVIEW**; and **BANKS AND BANKING**.

**NATIONAL MUNICIPAL LEAGUE.** See **MUNICIPAL LEAGUE, NATIONAL**.

**NATIONAL RESOURCES.** See **CONSERVATION**.

**NATURAL HISTORY, AMERICAN MUSEUM OF.** An institution established in New York City in 1869 for the purpose of maintaining a museum and library of natural history and of advancing the knowledge of kindred subjects. Admission to the museum is free as pay days were abolished in 1907. During 1910 important work in installing new collections and in making alterations to the museum were carried on. The chief work was the equipment and preparation for exhibition of the new west wing of the museum and the rearrangement and transfer of exhibits and collections in the department of anthropology connected therewith. Preliminary plans were prepared for the new western entrance hall of the museum facing 79th Street. Six new sections are under consideration by the trustees. These are needed for the proper distribution of the different collections.

The income from the Jesup bequest made in

1909 enabled the museum to carry on more active and successful expeditions in the field in 1910 than in any previous year in its existence. Exploratory work was carried on in ten of the different States of the Union and in Canada, East Africa, Belgian Congo, Celebes, Japan, Korea, Philippine Islands, Nicaragua and other countries. The most notable expeditions were those for the benefit of the Department of Zoölogy, especially the expedition to the Belgian Colony of the Congo and that to British East Africa. Important work was also done in the collection of whales off the coast of Japan. The anthropological work in the southwestern as well as in the northwestern part of the United States is yielding notable results. The most important accessions of the year were obtained from the museum expeditions to the cretaceous dinosaur beds of Montana and of Alberta, Canada. Specimens of skeletons of the duck-billed dinosaur and of the four-toed horse, representing a somewhat later stage in the ancestry of the horse than has been known hitherto, were obtained, and a large series of skulls, jaws, etc., of lower Eocene mammals, many of them new to science. Of special interest was the discovery of a considerable part of a dinosaur skeleton off Fort Lee at the very gates of the city of New York. This specimen was found in the red shale which underlies the trap rock of the Palisades of the Hudson. There were many important accessions in the department of anthropology. Among these were the Lenders collection of costumes and decorated objects from the various Indian tribes of Central and South America, presented by Mr. J. P. Morgan.

The membership of the museum at the close of 1910 was 2457. The expenditures during the year amounted to \$314,879. The State appropriated for the expenses of the museum \$180,000. The permanent endowment amounts to \$2,338,350. The President is Henry F. Osborn.

**NAVAL ACADEMY, UNITED STATES.** See **UNITED STATES NAVAL ACADEMY**.

**NAVAL CONFERENCE, INTERNATIONAL.** See **LONDON, DECLARATION OF**.

**NAVAL PROGRESS. ENGLAND AND GERMANY.** The year's naval progress was intimately connected with the rivalry in armaments between England and Germany. Though England was still uneasy, she was no longer in a panic. The Liberals remaining in office as the result of the December (1910) elections, there seemed to be no prospect of a "panic" naval budget. One evidence of better feeling was the official announcement of the withdrawal of the special division and flotillas mobilized at Chatham as a special precaution when Admiral of the Fleet Lord Fisher was First Sea Lord. Apparently England made a great mistake in building the *Dreadnought* in 1906. Had she continued to build the standard battleship carrying 4 12" guns, and an intermediate battery of 12 to 14 6" guns, she could much more easily have maintained the Two Power standard. But her own boast that the *Dreadnought* made all previous battleships obsolete gave Germany an opportunity she has made good use of. Pre-Dreadnoughts must be counted, of course, in a comparison of strength, as a second line of defense, but every new Dreadnought and super-Dreadnought, with their great tonnage, high speed, and heavy armaments and armor, make previous ships more and more unfit to lie in the line of battle. And England is

at a disadvantage because she is not sure that she knows just what Germany is doing. Critics, therefore, do not agree on the relative positions of the two nations during the coming few years. Mr. Blatchford, in letters to the *Daily Mail* of November 23, 24, 25, claimed that the British danger is greater to-day because Germany is relatively stronger; and that British readiness to avert or meet the peril is relatively smaller. He assumed that in 1913 Great Britain will have 25 Dreadnoughts to Germany's 21. His opponents reply that when the 25 British ships are completed in March, 1913, Germany will have only 13, and will not have 17 until the end of 1913, by which time Great Britain can have four more if necessary. It must be remembered that, by the end of 1913, Austria may have two Dreadnoughts in commission. According to the *Esercito Italiano*, the first of the four Italian Dreadnoughts, the *Dante Alighieri*, will be completed in October, 1911; the second, the *Conte di Cavour*, will be launched in August, 1911, within twelve months after being laid down; all four will be completed by January, 1913. In 1914, Germany will have 21 Dreadnoughts; and Great Britain 27, including the Australian and New Zealand vessels, and, in addition, any ships laid down in 1911-12. There is need for a large margin because, by 1914 or thereabouts, Austria and Italy may have eight Dreadnoughts.

**AUSTRALIA.** The old Naval Loan Act, by which the home government received £200,000 a year toward the maintenance of an Australian squadron, was repealed in August. The initial cost of the new Australian unit is over 3½ millions, with £750,000 a year for maintenance. Several vessels of the new unit had at the close of 1910 already been delivered. The two destroyers *Yarra* and *Parramatta* were in Australian waters; and the *Warrego* had arrived in sections to be rebuilt. The flagship *Australia* (Indefatigable class, 19,200 tons displacement; 8 12" guns in four turrets in echelon, 20 4" guns; speed 26 knots) was building at John Brown's Yard, and bids had been asked for the two second class cruisers *Melbourne* and *Sydney* of the *Bristol* class (4820 tons, 27 knots, 2 6" and 10 4.7" guns). By the middle of 1912, Australia will have in service 1 battle cruiser, three protected cruisers, three destroyers.

**NEW ZEALAND.** A battle cruiser was laid down for New Zealand at Fairfield Yard, Glasgow, June 20th. Three destroyers had been planned, but were not yet ordered at the close of the year.

**CANADA.** Ten warships have been authorized; and the *Niobe* and *Rainbow* transferred from the British Navy, for use as training ships; the former in the Gulf of St. Lawrence with headquarters at Halifax, and the latter on the Pacific Coast for the protection of the fishermen. Six destroyers for the Atlantic were to be commenced in 1911, or as soon as the necessary Canadian plant is equipped. The four cruisers authorized will be divided between the Atlantic and the Pacific coasts. It will be well along in 1914 before the first of her new vessels can be ready. A year is to be allowed for the establishment of shipyards in Canada toward the cost of which a subsidy will be given; the first ships are to be ready within three years, and all ten to be delivered within six years.

**BATTLESHIP PROPULSION.** The turbine is universally used; the French, however, have constant trouble with turbine blades getting broken or detached, thereby causing considerable damage. *Le Yacht* states that the destroyer *Chasseur* made "a regular salad" of her turbines. The new American battleship, to be built by the Newport News Company, will have reciprocating engines, instead of turbines, as originally intended. The reason given is that the increased cost of working, as shown in the comparative cruising of the scouts, was confirmed by the performances of the *Delaware* and *North Carolina* on the trip of the Atlantic Fleet to European waters in November. The question of motive power for battleships has become most interesting. There has been much talk of motor engines. The American press asserted that Lord Fisher stated in November, when asked if it was true that he favored the use of oil instead of coal as fuel, replied: "You have been misinformed about that. I have no desire to boom any oil company. The coming thing in navigation, in my opinion, is the motor engine. The country that first takes hold of the principle of internal combustion will sweep the world commercially. It is cheaper to produce, saves an immense amount of space, and requires 85 per cent. less men to work it." There are experts who claim that a motor driven battleship is at present impossible. In 1910 Messrs. Blohm & Voss were building a 9000 ton cargo liner for the Hamburg-American Co., with twin screws, driven by oil engines. The installation will consist of two Diesel engines, each of about 1500 brake horse power, the propeller speed being about 150 revolutions a minute, with a full vessel speed of 12 knots. The fuel will be petroleum residue, the cheapest variety of oil fuel obtainable. Experts are awaiting her performance with great interest. As to the use of oil engines for warship propulsion, it must be borne in mind that warships must be able to operate in any part of the world; and that they must be able to secure a supply of fuel at all ports; and this is not possible with the present supply and distribution of oil fuel. The adoption of gas production promises clear decks, clean ships, no smoke, more space for crews, greater weight to devote to offense and defense; and that there will be no boilers.

**THE AEROPLANE IN NAVAL WARFARE.** In October, 1909, the Wright biplane circled the Statue of Liberty, New York Harbor, and Grant's Tomb, passing battleships of many nations anchored in the Hudson River. Since then the English Channel has been crossed several times, and great heights have been reached and maintained, although the aeroplane is still in the experimental stage. An efficient motor is the prime necessity, to permit the machine to remain in the air for many hours. It is admitted that the aeroplane will be of great value as a lookout, and in scouting. On November 14th, E. B. Ely, aviator, in his Curtiss biplane was started from a temporary launching platform on the deck of the U. S. Scout *Birmingham*, anchored in Hampton Roads, Va. The platform was inclined at an angle of about five degrees. He rose to 100 feet, and flew about five miles to Willoughby Spit, where he landed safely. In warfare, even if the aviator, starting from the deck of a vessel, cannot reach his platform on his return,

and lands in the sea, he can readily be picked up. In early December the Royal Aero Club placed two aeroplanes at the disposal of the British Admiralty for the use of naval officers at Sheerness and Chatham. They also placed their flying ground at the disposal of Naval Officers; and several certified "airmen" promised to assist in giving instruction. Great Britain's first aerial Dreadnought has been built at Barrow-in-Furness. This dirigible is the largest aerial craft built so far; and is able to stay in the air away from its home base for days. It is of the Zeppelin rigid type, a number of balloons being placed in separate compartments in a metallic shell. England is making Barrow the headquarters of her aerial fleet, £55,000 having been allowed the Navy for air craft. Experiments have been made to test the destructive power of explosives dropped on the decks of ships. The report of those conducted aboard the U. S. monitor *Tallahassee* was not made public, but the London *Outlook* stated that no net could be constructed that would withstand the impact of a torpedo dropped from a height of 400 to 500 feet. During this test it is said that the falling shells crashed through a steel wire net having a defensive resistance equal to that of a steel plate  $\frac{1}{4}$  inch thick. At Mineola, Long Island, on August 5th, C. B. Harman fired six oranges, representing bombs, from two improvised guns, one on each side of the aviator's seat, at the deck of a battleship outlined on the field below, from a height of over 100 feet. All shots were hits. Glenn Curtiss also dropped bombs on the deck of a dummy battleship floating on the lake at Hammonds Point, N. Y. At Squantum, in September, Grahame-White excelled all competitors at bomb throwing, hitting the dummy battleship deck nearly every time. The latest trials, at heights of 1800 feet and over, showed that accuracy could not be counted on. With the aeroplane still in the experimental stage, vertical fire guns have already been built to repel them. The "airmen" proclaim the doom of the battleship; but the battleship has so far survived two dooms—from the torpedo, and the submarine. A new gun invented by Major Unge was tried at the Marma proving grounds near Upsala, Sweden, in October. It is intended to discharge "air torpedoes"; but it is primarily designed as an armament for dirigibles. Ten torpedoes were fired, resembling somewhat the Krupp projectile, but fitted with smoke tracers. For use on the ground, with an elevation of 24 degrees, a range of 3600 yards is claimed; while an elevation of 40 degrees gives over 4900 yards. As the armament of a dirigible, the gun hangs by two cables from 16 to 33 feet below the car. The breech cable has an electric connection for firing the gun; the elevation is regulated by the muzzle cable, and, for loading the gun, the latter cable brings it toward the vertical so that the torpedo can be inserted through a hole in the bottom of the car. The gun weighs only 70.5 pounds; and the carriage for land use only 72.7 pounds.

"It is yet too early in any way to forecast what will be the development of aerial warfare, but it is certain that it will be a most important factor in the battles of the future. Aerial battles will be fought in three dimensional space, and will call for a new set of mili-

tary principles, and for an all-round resource on the part of the commander far in excess of any yet seen." From articles in the *Tag* and the *Militär Wochenblatt*, it is thought in Germany, as elsewhere, that the aeroplane will yet find a way to destroy the dirigible by means of light shell dropped from above. The aeroplane may yet carry some kind of machine gun, or bomb thrower.

**TORPEDOES AND MINES.** All navies are not only improving their destroyers, submarines, torpedoes, and mines, but are also using them in practice much more than formerly. England has built no more destroyers like the *Swift* (1907), of 1825 tons; those ordered in 1910 displaced from 770 to 780 tons; speed 29 knots; 2 4" guns and 2 to 4 12 pounders; 2 torpedo tubes; oil capacity, 130 tons. It is known that six others will use internal combustion engines.

The development of the submarine is receiving universal attention. France is building four experimental submersibles of different types, varying in tonnage from 355 tons on the surface and 450 tons submerged to 577 tons on the surface and 810 tons submerged; and varying in length from 14 m. to 64 m. They will make 15 knots on the surface and ten knots submerged; will use internal combustion engines; and have seven tubes. They are all designed by Labeut. The salvage of submarines is a problem still far from solution. The United States Navy has adopted a diving jacket to permit escape from a disabled submarine; and each submarine carries permanent exterior chain slings forward and aft, to enable the mother ship to lift it from the bottom. The French now drill at passing chain slings around the body of a sunken submarine.

**POWDER.** In the United States, very little progress has been made in preventing erosion, which is caused by large charges fired with a high temperature of explosion. In guns of the same calibre, but with lower velocities, lower pressures and smaller charges, the erosion is much less. At present, the question is whether to reduce the power of the gun, use a heavier weight to do the same work, or wear out the gun. The 50 calibre gun for the *Arkansas* and *Wyoming* erode very rapidly with full charges. At the end of 100 rounds the latest guns would have to be relined. The points aimed at in the manufacture of powder are, first, to insure its chemical stability for as long a period as possible; and, second, to secure a degree of uniformity which will insure the "ballistic stability" of the powder—that is, permanence of velocities and pressures during long periods and under varying conditions of temperature, moisture, etc. The new "stabilizer," introduced last year to insure chemical stability, continues to be satisfactory, and must be regarded as a permanent constituent.

**PROJECTILES.** The new American long point projectile will penetrate armor at about 20 per cent. greater range than the old type. The extreme range for commencing an action will perhaps be 10,000 yards, at which this projectile has an approximate penetration of 15" of hard faced armor with normal impact. See **BATTLESHIPS**; also separate articles on countries.

**NAVIES, FOREIGN.** See under different countries, and tables on pages 494, 495, and 496

TABLE I. WARSHIP TONNAGE OF THE PRINCIPAL NAVAL POWERS, DEC. 1, 1910

Type of Vessel	GREAT BRITAIN				GERMANY			
	Built		Building		Built		Building	
	No.	Tons	No.	Tons	No.	Tons	No.	Tons
Battleships* (Dreadnought type) ....	8	151,350	6	130,500	4	74,408	9	193,500
Battleships, first class** .....	49	714,750			22	262,616		
Coast-defense vessels† .....					6	24,308		
Armored cruisers †† (Invincible type) .....	3	51,750	5	108,950	1	19,000	3	66,000
Armored cruisers .....	34	406,800			9	94,245		
Cruisers above 6,000 tons††† .....	17	168,900						
Cruisers 6,000 to 3,000 tons††† .....	44	200,940	7	33,220	25	102,380	4	21,650
Cruisers 3,000 to 1,000 tons††† .....	23	49,540			16	36,077		
Torpedo-boat destroyers .....	168	83,350	41	31,700	91	46,002	18	11,260
Torpedo boats .....	59	12,710			27	4,719		
Submarines .....	67	19,078	17	10,300	8	2,280	12	5,400
Total tons built and total tons building .....		1,859,168		314,670		666,035		297,810
Total tons built and building .....				2,173,838				963,845

Type of Vessel	UNITED STATES				FRANCE			
	Built		Building		Built		Building	
	No.	Tons	No.	Tons	No.	Tons	No.	Tons
Battleships* (Dreadnought type) ....	4	72,000	4	95,650			2	46,184
Battleships, first class** .....	25	334,146			17	221,716	5	90,150
Coast-defense vessels† .....	6	23,299			3	17,190		
Armored cruisers †† (Invincible type) .....								
Armored cruisers .....	12	157,445			21	197,291	1	13,779
Cruisers above 6,000 tons ††† .....	5	43,800			3	24,022		
Cruisers 6,000 to 3,000 tons††† .....	14	49,541			8	33,527		
Cruisers 3,000 to 1,000 tons††† .....	11	13,437			2	4,706		
Torpedo-boat destroyers .....	28	15,370	8	5,930	65	21,748	14	9,638
Torpedo boats .....	28	4,802			225	21,224	2	360
Submarines .....	19	3,862	11	4,870	59	14,882	21	8,814
Total tons built and total tons building .....		717,702		106,450		556,306		168,925
Total tons built and building .....				824,152				725,231

Type of Vessel	JAPAN				RUSSIA			
	Built		Building		Built		Building	
	No.	Tons	No.	Tons	No.	Tons	No.	Tons
Battleships* (Dreadnought type) ....			2	41,600			4	92,000
Battleships, first class** .....	12	171,898	1	19,800	8	104,600	1	16,600
Coast-defense vessels† .....	3	18,786			2	10,380		
Armored cruisers †† (Invincible type) .....	2	29,200						
Armored cruisers .....	11	108,900			7	70,200		
Cruisers above 6,000 tons, ††† .....	2	13,130			7	46,460		
Cruisers 6,000 to 3,000 tons††† .....	9	34,580	3	15,000	2	6,300		
Cruisers 3,000 to 1,000 tons††† .....	5	9,158			2	2,680		
Torpedo-boat destroyers .....	57	20,667	2	2,300	97	36,254	3	2,550
Torpedo boat .....	59	5,560			45	5,697		
Submarines .....	9	1,412	4	1,680	31	6,542	2	1,200
Total tons built and total tons building .....		413,291		80,380		289,113		112,350
Total tons built and building .....				493,671				401,463

Type of Vessel	ITALY				AUSTRIA-HUNGARY			
	Building		Building		Built		Building	
	No.	Tons	No.	Tons	No.	Tons	No.	Tons
Battleships* (Dreadnought type) ....			4	84,600			12	40,000
Battleships*, first class** .....	9	109,000			5	60,342	1	14,271
Coast-defense vessels† .....					6	41,700		
Armored cruisers †† (Invincible) .....								
Armored cruisers .....	10	78,520			3	18,800		
Cruisers above 6,000 tons††† .....								
Cruisers 6,000 to 3,000 tons††† .....			3	9,750	3	11,483		
Cruisers 3,000 to 1,000 tons††† .....	7	14,720			3	7,050		
Torpedo-boat destroyers .....	23	7,997	13	6,000	14	5,762		
Torpedo boats .....	58	8,500	30	3,750	47	7,155		
Submarines .....	7	1,222	10	3,000	6	1,646	6	1,690
Total tons built and total tons building .....		219,959		107,100		153,938		55,961
Total tons built and building .....				327,059				209,899

\* Battleships having a main battery of all big guns. (11 inches or more in caliber.)

\*\* Battleships, first class, are those of (about) 10,000 or more tons displacement.

† Includes smaller battleships and monitors.

†† Armored cruisers having guns of largest caliber in main battery and capable of taking their place in line of battle with the battleships. They have an increase of speed at the expense of carrying fewer guns in main battery and a decrease in armor protection. Are also called battleship cruisers.

††† All unarmored war ships of more than 1,000 tons are, in this table, classed according to displacement as cruisers. Scouts are considered as cruisers in which battery and protection have been sacrificed to secure extreme speed. The word "protected" has been omitted because all cruisers except the smallest and oldest now have protective decks.

‡ Colonial vessels included.

§ Building under agreement with Navy Department before authorization by Delegations.

N. B.—The following vessels are not including in the tables:

Those over twenty years old, unless they have been reconstructed and rearmed since 1900.

Those not actually begun, although authorized.

Transports, colliers, repair ships, torpedo depot ships, converted merchant vessels, or yachts.

Vessels of less than 1,000 tons, except torpedo craft.

Torpedo craft of less than 50 tons.

TABLE II. RELATIVE ORDER OF WARSHIP TONNAGE

At Present	
	Tonnage
Great Britain.....	1,859,168
United States.....	717,702
Germany.....	666,035
France.....	556,306
Japan.....	413,291
Russia.....	289,113
Italy.....	219,959
Austria-Hungary.....	153,938

## AS WOULD BE THE CASE WERE VESSELS BUILDING NOW COMPLETED

Nation	Tonnage
Great Britain.....	2,173,838
Germany.....	963,845
United States.....	824,152
France.....	725,231
Japan.....	493,671
Russia.....	401,463
Italy.....	327,059
Austria-Hungary.....	209,899

**NAVY, UNITED STATES.** See UNITED STATES NAVY.

**NAZIMOVA, ALLA.** See DRAMA.

**NEBRASKA.** One of the North Central Division of the United States. It has an area of 77,530 square miles. Its capital is Lincoln.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 1,192,214 as compared with 1,066,300 in 1900 and 1,062,656 in 1890. The increase in the decade 1900 to 1910 was 11.8. The State ranks twenty-ninth among the States in point of population, whereas in 1900 it ranked twenty-seventh. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** There are deposits of several minerals of importance in the State, but the mineral resources are in process of development. One fairly good coal mine is operated and others are projected. There are deposits of silica, and sand and gravel exist in large quantities. There is also a considerable amount of good building stone.

**AGRICULTURE.** The acreage, production and value of the principal crops in 1909-10 are shown in the table at top of next column.

	Acreage	Prod. bu.	Value
Corn, 1910.....	8,000,000	206,400,000	\$74,304,000
1909.....	7,825,000	194,060,000	97,030,000
W. wheat, 1910	2,100,000	34,650,000	27,720,000
1909.....	2,350,000	45,690,000	40,575,000
Spring wheat, '10	350,000	4,865,000	3,892,000
'09.....	290,000	4,060,000	3,613,000
Oats, 1910.....	2,650,000	74,200,000	20,776,000
1909.....	2,473,000	61,825,000	21,639,000
Barley, 1910.....	135,000	2,498,000	1,124,000
1909.....	120,000	2,640,000	1,135,000
Rye, 1910.....	75,000	1,200,000	720,000
1909.....	80,000	1,320,000	803,000
B'wheat, 1910.....	1,000	20,000	18,000
Flaxseed, 1910.....	10,000	80,000	180,000
1909.....	16,000	136,000	166,000
Potatoes, 1910.....	110,000	6,800,000	5,544,000
1909.....	105,000	8,190,000	4,914,000
Hay 1910.....	1,500,000	1,500,000a	13,350,000
1909.....	1,550,000	2,325,000	13,957,000

aTons.

**EDUCATION.** The total number of children of school age in the State in 1909 was 373,067, and the total enrollment was 280,252. The average daily attendance was 191,076. The average monthly salary of teachers was \$53.71. There were in 1910-11 543 graded schools, 4422 teachers, 107 normal training high schools, 130 four-year high schools, and 49 three-year high schools. The present educational policy of the State has a strong tendency toward the building up of the rural schools and also towards intensifying the study of the common branches and those phases of education which have to do with the home life of the pupil. Industrial education has received special attention. The high schools maintain courses in agriculture, and are rapidly providing courses in domestic science and manual training. One phase of education in the State which is worthy of special note is the training of teachers for the rural schools by the normal training courses.

## POLITICS AND GOVERNMENT

There was no meeting of the State legislature in 1910, as the meetings are biennial and the last was held in 1909. The next session of the legislature meets January 1, 1911.

**CONVENTIONS AND ELECTIONS.** Municipal elections were held throughout the State with the exception of Omaha and Lincoln, on April 5. Their chief interest centered in the prohibition question and the result of the election was a generally unchanged condition. Prohibition towns in general continued "dry" and the li-

TABLE III. SEA STRENGTH OF GREAT POWERS

Vessels Built								
Battleships Dreadnought type. (a)	Battleships (b)	Armored cruisers Invincible type (c)	Armored cruisers	Cruisers (d)	Destroy- ers	Torpedo boats	Subma- rines	Coast de- fense ves- sels (e)
England.....	8	49	3	34	84	168 (k)	59	67
Germany.....	4	22	1	9	41	91	27	8
U. S.....	4	25	0	12	30	28	28	19
France.....	0	17	0	21	13	65	225	59
Japan.....	0	12	2	11	16	57	59	9
Russia.....	0	8	0	7	11	97	45	31
Italy.....	0	9	0	10	7	23	58	7
Austria.....	0	5	0	3	6	14	47	6

(a) Battleships having a main battery of all big guns (11 inches or more in caliber).

(b) Battleships, 1st class, are those of (about) 10,000 tons or more displacement.

(c) Armored cruisers having guns of largest caliber in main battery and capable of taking their place in line of battle with the battleships. They have an increase of speed at the expense of carrying fewer guns in main battery, and a decrease in armor protection; also called battleship cruisers.

(d) Includes all unarmored cruising vessels above 1,000 tons displacement.

(e) Includes smaller battleships and monitors. No more vessels of this class are being proposed or built by the great powers.

TABLE IV. VESSELS BUILDING OR AUTHORIZED

	Battleships Dreadnought type	Armored cruisers Invincible type	Armored cruisers	Cruisers	Destroyers	Torpedo boats	Sub- marines
England (f) .....	10	0	0	13 (h)	44 (h)	0	17
Germany (g) .....	9	0	0	0	14	0	12 (i)
United States .....	9	0	0	0	14	0	16
France .....	2	5	1	0	20	2	28
Japan (h) .....	2	1	0	5	3	0	4
Russia .....	4	1	0	0	3	0	2
Italy .....	4	0	0	3	10	50	12
Austria .....	2 (i)	1	0	0	0	0	6

(f) England has no continuing shipbuilding policy, but usually lays down each year 5 armored ships with a proportional number of smaller vessels.

(g) Germany has a continuing shipbuilding policy, authorized by the Reichstag, and extending to the year 1917. For 1911 there are authorized 3 battleships, 1 armored cruiser, 2 cruisers, 12 destroyers. Eventual strength to consist of 38 battleships, 20 armored cruisers, 38 cruisers, 144 destroyers.

(h) One more battleship, 2 more armored cruisers, 1 more cruiser, and several destroyers and submarines authorized to be laid down and completed by 1916.

(i) \$3,750,000 authorized for experiments and further construction.

(j) Includes vessels authorized by colonies.

(k) Building under agreement with Navy Department before authorization by Delegations.

NOTE—The following vessels are not included in the tables:

Those over twenty years old unless they have been reconstructed and rearmcd since 1900.

Transports, colliers, repair ships, converted merchant vessels, or any other auxiliaries.

Vessels of less than 1,000 tons, except torpedo craft. Torpedo craft of less than 50 tons.

In making comparisons of naval strength, and particularly of naval increase, the fact should be taken into consideration that the *rapidly* of construction varies materially in different countries.

In England and Germany battleships and armored cruisers are completed in two to three years; in the United States and Japan in about three years; and in France, Italy, and Russia not less than four years are required.

Table IV includes vessels authorized but not yet laid down, as well as those actually under construction.

TABLE V. PERSONNEL

Rank	England	France	Germany	Japan	U. S. (*)
Admirals of the Fleet .....	6	.....	1	1	.....
Admirals .....	12	.....	4	5	.....
Vice Admirals .....	22	15	11	23	.....
Rear Admirals .....	55	30	19	33	27 (d)
Captains and Commanders .....	637	340	283	271	203
Other line officers .....	2,214	1,482	1,516	1,591	1,082
Midshipmen at sea .....	454	103	398	182	298
Engineer officers .....	971	423	398	576	.....
Medical officers .....	522	398 (b)	273	339 (e)	293
Pay officers .....	600	198	216	297	197
Chaplains .....	126	.....	.....	.....	23
Warrant officers .....	2,557	2,191 (c)	2,441	1,138	682
Enlisted men .....	101,985	51,202	50,857	42,042	47,500
Marine officers .....	449	.....	105	.....	334
Enlisted men (Marines) .....	19,973	.....	1,363	.....	9,521
Total .....	130,572	56,388	57,885	46,498	60,160

\* The Admiral of the Navy.

(a) Includes 3,120 men of Coast Guard.

(b) Includes pharmacists and apothecaries.

(c) Includes adjutants, maitres, and premier maitres of all branches.

(d) The United States has now temporarily, as extra numbers, due to promotion for war service, 8 flag officers, 11 captains, 6 commanders, 9 lieutenant-commanders, and 4 lieutenants.

(e) Includes 20 pharmaceutical officers.

cense towns continued license. Beatrice, Kearney and several of the larger towns, which were no license in 1909, voted for license. The Prohibitionists gained a small number of towns which have never voted on the prohibition question. On April 11, after the most aggressive fight ever known in the city, Lincoln voted "dry" by 365 votes. The "dry" victory was due in a large measure to the women of the city.

The chief question at issue in the Republican party of Nebraska, as in other western States, was the contest for the control between the progressive and regular wings. The Republican State Convention met at Lincoln on July 26. In spite of the strength of the insurgents throughout the State, George W. Norris, one of the most active progressive congressmen, was defeated by Senator Norris Brown, a regular. Norris lost by a vote of 551 to 288. The convention passed a resolution by a vote of 526 to 276 indorsing county option. It also declared for direct legislation. Although the naming of Senator Brown as permanent chairman was regarded as a victory for the regulars, Congressman Norris succeeded in having the convention pass a resolution indorsing his course

in congress. The convention indorsed President Taft's administration and referred in terms of high praise to Mr. Roosevelt.

The chief interest in local Democratic politics centered in the prohibition question. William J. Bryan was a strong advocate of county option prohibition, and previous to the State convention he made a strong effort to have a plank for county option included in the Democratic platform. His efforts, however, resulted in little success. Mr. Bryan was practically isolated in its support in the State convention which met at Grand Island on July 26. He made a strong fight for the adoption of the plank, however, which he presented as a minority report of the committee on resolutions and which he defended in a speech lasting two hours. The final vote on the measure stood 647 against Mr. Bryan and 195 in his favor. To add to his discomfiture, Congressman G. M. Hitchcock, whom twelve years ago Mr. Bryan prevented from being appointed United States Senator, introduced a resolution providing that no planks for the platform should be presented or argued before the convention except those indorsed by a majority or minority report of the committee on resolutions. The purpose of this resolution

was to prevent Mr. Bryan as an individual from presenting or arguing his county option plank. The resolution was adopted after an amendment by Mr. Bryan had been voted down. The convention was strongly against any measure advocated by the former leader and an attempt was apparent to eliminate his power from State politics. Every man whom he advocated for nomination was defeated. The great contest between Mr. Bryan and his opponents came in the evening of the day of the convention when the resolutions and platform were presented to the convention after Mr. Bryan and his county option plank had been turned down in the committee. In Mr. Bryan's speech of two hours, he pleaded with his old friends not to repudiate him, but at the same time offered to relinquish his leadership of the party rather than be forced to support a platform in which county option was not a plank. After the conclusion of his speech he was obliged to listen to one of the most bitter personal attacks ever heard in a Nebraska convention. Delegate after delegate arose and accused him and his measure and defended their own course in voting against it. The action of the convention was generally taken to mean that Mr. Bryan's power as political leader of the State had come to an end, at least for the time being.

Primary elections were held for the nominations for Senator and Congressmen on August 16. The Republican insurgents received a serious setback when Senator Burkett the regular candidate for re-election received a large majority of votes over C. O. Whedon the insurgent candidate. Representative Norris, who led the attack in Congress against Speaker Cannon in 1909-10, was renominated in his district without opposition, but in all other congressional districts of the State the regular candidates were nominated. In these primaries the vote was against county option in both parties. In the Democratic primaries, James C. Dahlman was nominated for governor, defeating Governor Shallenberger, who favored local option. For the senatorial nomination G. M. Hitchcock defeated Richard L. Metcalfe, editor of Mr. Bryan's newspaper, *The Commoner*, by a vote of 3 to 1. The Republicans nominated for governor Chester H. Aldrich. In the campaign which followed these elections, Mr. Bryan refused to support the Democratic nominee for governor because of his party's stand on the liquor question. He spoke during the campaign in favor of the other Democratic candidates. In the elections which followed these conventions, Mr. Roosevelt and Senator Cummins of Iowa made speeches in the State in the interest of Senator Burkett. In spite of these efforts, however, he was defeated by Mr. Hitchcock by about 25,000 votes. On the other hand, Mr. Aldrich, Republican candidate for governor, was elected by about 12,000 votes. The legislature remains Democratic and the congressional representatives are divided between the two parties in about the same ratio as before. The entire Republican State ticket was elected. Two of the three Republican congressmen elected, Norris and Sloan, are listed insurgents.

**OTHER EVENTS.** On April 4 the Supreme Court declared unconstitutional the law requiring railroads to build switches to grain elevators.

**STATE OFFICERS:** Governor, Chester H. Aldrich, Republican; Lieutenant-Governor, M. R.

Hopewell; Secretary of State, Addison Wait; Treasurer, W. A. George; Auditor, Silas A. Barton; Attorney-General, Grant G. Martin; Superintendent of Education, J. C. Crabtree; Secretary of Agriculture, S. R. Mellor; Commissioner of Public Lands, E. C. Cowels—all Republicans.

**SUPREME COURT** Chief Justice, Manoah B. Reese; Justices, Charles B. Letton, Jesse L. Root, Jacob Fawcett, William B. Rose, John B. Barnes, and Samuel H. Sedgwick; Clerk, H. C. Lindsay—all Republicans.

**STATE LEGISLATURE, 1911.** State, Republicans 14; Democrats 19; Democratic majority 5. House, Republicans 46; Democrats 54; Democratic majority 8. Joint Ballot, Republicans 60; Democrats 73; Democratic majority 13.

**NEBRASKA, UNIVERSITY OF.** An institution of higher learning at Lincoln, Neb., founded in 1869. The attendance in 1909-10 was 3992, of whom 2236 were men and 1756 were women. The enrollment was divided as follows: Graduate college, 154; college of arts and sciences, 1089; teachers' college, 332; college of engineering, 435; college of agriculture, 696; college of law, 192; college of medicine, 197; school of fine arts, 68; university school of music, 654; summer session, 399; school of superintendence, 67; university extension, 219. The faculty numbered 263. Among additions to the various faculties for the year 1910-11 were included the names of Philo Melvyn Buck, Jr., of the St. Louis public schools, as associate professor of rhetoric; Professor Herbert Brownell, to have charge of the teachers' college training school; Joseph Alexis, as instructor of Swedish, G. Herbert Coons, adjunct professor of agricultural botany, and George Crocker, public instructor in the school of agriculture. There are about 90,000 volumes in the library. The university is supported by the State. The Chancellor is Samuel Avery.

**NECROLOGY.** In the following list are included the names of noteworthy persons who died during 1910. The persons to whose names asterisks are prefixed are given separate biographies in alphabetical order in the body of the work. Most of the names of persons who are not given separate biographies have added to them the dates of birth and death, but in some cases it was not possible to obtain these.

\* Achenbach, Andreas. German landscape painter.

\* Acton, John Adams. English sculptor.

\* Agassiz, Alexander. American scientist.

\* Agnew, Sir William. English publisher.

Albano, Elías Fernández. Acting President of Chile. Died September 6.

Albaugh, John W. American actor and theatrical manager. Died April 7; born, 1867.

\* Alençon, Ferdinand Philippe Marie, Duc d', French nobleman.

\* Alexander, Boyd. English explorer and naturalist.

\* Alexander, Eben. American educator and diplomat.

\* Alexander, Samuel. American surgeon.

\* Alexis, Nord, Former president of Haiti.

\* Amador, Martín. Colombian public official.

\* Ames, James Barr. American lawyer and educator.

\* Amory, Robert. American physician.

- \* Andrews, Wesley R. American politician.  
Andrus, Elias Van A. American army officer.  
Died April 3; born, 1840.
- \* Archer-Hind, Richard Dacre. English classical scholar.
- \* Awdrey, William. Bishop of the Anglican Church.
- Azad-el-Mulk. Regent of Persia. Died September 22; born 1838.
- Baker, Page N. American editor. Died May 28; born 1840.
- \* Balakireff, Mili Alexeyevich. Russian composer.
- Baldwin, Stephen Warner. American educator and engineer. Died January 5; born, 1834.
- \* Banks, A. Bleecker. American public official.
- \* Barboux, Henri. French lawyer and Academician.
- \* Barnes, Reid. American botanist.
- \* Barrett, Joseph Hartwell. American political writer.
- Baron, John. American actor and manager. Died May 8; born, 1835.
- \* Bartlett, Edward Theodore. American jurist.
- \* Bartley, Sir George Christopher Trout. English philanthropist.
- \* Barry, Alfred. Bishop of the Anglican Church.
- \* Beach, Henry James Aubrey. American surgeon.
- \* Belden, Jessie (Van Zile). American author.
- \* Berger, Georges. French critic and essayist on art.
- Bergeret, Denis Pierre. French artist. Died March; born, 1844.
- \* Berne-Bellecour, Étienne Prosper. French landscape painter.
- Beylie, Léon Marie Eugène de. French soldier and archæologist. Died July 17; born, 1840.
- \* Bierbaum, Otto Julius. German author.
- Bishop, Henry F. American dentist and writer. Died January 14; born, 1819.
- \* Björnson, Björnstjerne. Norwegian poet.
- \* Blackwell, Elizabeth. American physician.
- \* Blackwell, Emily. American physician.
- \* Blake, William Phipps. American geologist and mineralogist.
- Blavet, Émile Rayner. French journalist, dramatist and author. Died, September; born, 1838.
- \* Blunt, Richard Frederick Lefevre. Bishop of the Anglican church.
- Bluther, Julius. German piano maker. Died April; born, 1824.
- Bolles, Hezekiah Eugene. American lawyer and antiquarian. Died, October 28; born, 1853.
- Bordier, Arthur. German anthropologist. Died May; born, 1841.
- Borja, Cæsar. Ecuadorean public official. Died February 1; born, 1852.
- Böttcher, O. German agriculturist. Died February 2.
- Bousfield, Sir William. English publicist. Died April 7; born, 1842.
- \* Bowers, Lloyd Wheaton. American lawyer.
- \* Bowne, Borden Parker. American Methodist Episcopal clergyman.
- \* Bowser, Edward Albert. American mathematician and engineer.
- \* Bradley, Luther P. American army officer.
- \* Brady, John. American Roman Catholic bishop.
- \* Brayton, Charles Ray. American lawyer and politician.
- \* Brewer, David Josiah. Associate Justice of the United States Supreme Court.
- \* Brewer, William Henry. American scientist and educator.
- \* Bristol, Augusta (Cooper). American author.
- \* Brooks, Henry S. Journalist and author.
- \* Broward, Napoleon Bonaparte. American public official.
- \* Brown, Arthur Erwin. American naturalist.
- \* Brownell, Simeon. American abolitionist.
- \* Bryan, Edward Payson. American railway official.
- \* Bryant, David E. American jurist.
- \* Buckham, Matthew Henry. American educator.
- Bulkley, John Wells. American physician, who attended President Lincoln after he was shot. Died August 23; born, 1823.
- \* Burgess, Gaven D. American jurist.
- \* Burgess, Neil. American actor.
- \* Burwell, William Turnbull. American naval officer.
- \* Butcher, Samuel Henry. English classical scholar.
- \* Butler, Arthur John. English scholar.
- \* Butler, Sir William Francis. English soldier and writer.
- Byington, Aaron Homer. American war correspondent and editor. Died December 29; born, 1826.
- \* Call, Wilkinson. American public official.
- \* Cameron, John. Canadian Roman Catholic bishop.
- \* Candidus, William. American singer.
- \* Candler, Allen Daniel. American public official.
- Candy, Charles. American soldier. Died October 28; born, 1832.
- \* Carey, Augustus C. American inventor.
- \* Carleton, Henry Guy. American playwright.
- \* Carlisle, John Griffin. American lawyer and public official.
- \* Carney, Hugh J. American Roman Catholic clergyman.
- Carr, Eugene A. American soldier, brigadier-general, retired. Died December 2; born, 1830.
- Caswell, Robert C. American Protestant Episcopal clergyman.
- \* Chanute, Octave. American engineer and scientist.
- \* Charlton, John. Canadian publicist.
- \* Chartres, Robert Philippe Louis Eugène Ferdinand d'Orléans, Duc de. French nobleman.
- \* Chatterton, Hedges Eyre. Irish jurist.
- Chauvet, J. A. Emmanuel. French journalist. Died September; born,
- Cherbourg, Ernest. French ballad writer. Died December.
- Cheysson, Émile. French economist. Died February; born, 1836.
- \* Chipman, Henry L. American soldier.
- \* Chrobak, Rudolph. Austrian physician.
- \* Chulalongkorn, Paramindr Maha, King of Siam.
- Church, George Earle. American engineer and historical writer. Died January 5; born, 1835.
- Cisneros, Salvador. Cuban senator and former president. Died October 21; born, 1834.
- \* Clark, Charles Cameron. American railroad official.

- \* Clark, Edward Lord. American Congregational clergyman.
- \* Clark, Galen. American naturalist.
- \* Clark, John Willis. English zoölogist.
- \* Clarke, Creston. American actor.
- \* Clay, Alexander Stephens. United States Senator from Georgia.
- \* Clemens, Samuel Langhorne. American humorist.
- Clement, Clay. American actor. Died February 21; born, 1863.
- Clephane, James Ogilvie. American inventor. Died November 30; born, 1842.
- \* Coates, Henry Troth. American publisher.
- Cobb, Henry Nitchie. American Presbyterian clergyman and missionary. Died April 17; born, 1834.
- Cochran, Morris J. American jurist. Died June 21; born, 1864.
- Cole, Lucius A. American financier, President of the National Lead Company. Died August 25.
- Collins, Lottie. English music hall artist. Died May 1.
- \* Colonne, Jules. French musical conductor.
- \* Comfort, George Fisk. American educator.
- \* Comstock, Cyrus Ballou. American army officer.
- \* Conder, Claude Reignier. English army officer and author.
- Conterno, Luciano G. Italian-American musician and bandmaster. Died May 5; born, 1839.
- \* Cook, Joel. American Congressman and writer
- Coquard, Arthur. French composer and writer on music. Died September; born, 1846.
- Corbin, Philip. American manufacturer and capitalist. Died November 3; born, 1824.
- Corneille, Eugène. French journalist. Last male descendant of Pierre Corneille. Died June; born, 1863.
- Cox, Maria (McIntosh). American author and newspaper writer. Died February 21; born, 1833.
- Craig, John A. American cattle breeder. Died August 9.
- Crane, James. American paper manufacturer. Died July 21; born, 1847.
- Crowninshield, Caspar S. American public official. Died September 26; born, 1871.
- Crozer, Samuel A. American manufacturer and landowner. Died June 28; born, 1825.
- \* Cruz, Anibal. Chilean diplomat.
- \* Cudahy, Michael. American merchant.
- Curran, Peter Francis. Irish politician. Died February 14; born, 1860.
- \* Curtis, Newton Martin. American soldier.
- \* Cutter, Benjamin. American musical educator.
- \* Da Costa, John Chalmers. American surgeon.
- Daggett, William C. American physician and educator. Died September 18; born, 1860.
- \* Dana, Sylvester. American lawyer.
- \* Dana, William B. American editor.
- Dandliker, Emil. Swiss historian. Died, September; born, 1849.
- \* Daniel, John Warwick. United States senator from Virginia.
- \* Darley, Sir Frederick Matthew. Australian jurist.
- Darling, Flora Adams. American club woman and author. Died January 6; born, 1841.
- \* Davis, Andrew Jackson. American lecturer.
- \* Davis, Rebecca Harding. American author.
- \* Davis, William Vail Wilson. American Congregational clergyman.
- \* Day, Charles Orrin. American theologian.
- Dayton, Charles W. American jurist. Died December 7; born, 1846.
- Deane, Margaret. American educator and philanthropist. Died December 26; born, 1831.
- De Hass, Wills. American physician and anthropologist.
- \* Delagrangé, Leon. French sculptor and aviator.
- \* Delisle, Leopold Victor. French historian and bibliographer.
- \* Dennison, James. American educator.
- \* Dent, Francis. American Roman Catholic priest.
- Dermehren, Johann Frederick Nikolai. Dutch artist. Died, January.
- De Serrano, Carlos A. Mexican musician and educator. Died May 31; born, 1854.
- \* Dewing, Oliver M. American physician.
- Dexter, Henry. American publisher and financier. Died, July 11; born, 1813.
- Dickinson, Charles Courter. American banker. Died May 24; born, 1870.
- \* Dexter, Henry Morton. American clergyman.
- Dickins, Francis W. American rear-admiral. Died, September 15; born, 1845.
- Dill, James B. American jurist. Died December 2; born 1854.
- \* Dodge, Thomas H. American inventor.
- \* Dolbear, Amos Emerson. American educator.
- \* Dolliver, Jonathan Prentiss. United States Senator from Iowa.
- Dominguez, Florencio L. Argentine diplomat and Minister to Great Britain. Died November 29.
- \* Donohue, Charles. American jurist.
- D'Otrante, Gustave Armand, Duc. French nobleman. Died August 13; born, 1840.
- Dodge, Charles Cleveland. American soldier and financier. Died November 4; born, 1841.
- Dodsworth, William. American editor and newspaper proprietor. Died February 7; born, 1827.
- \* Dowden, John A. Bishop of the Episcopal Church in Scotland.
- \* Draper, William Franklin. American manufacturer.
- \* Drummond, Sir George. Canadian financier. Died February 1; born, 1829.
- \* Duboc, Charles Edouard. German author.
- \* Dunant, Jean Henri. Swiss author.
- \* Dunne, Edward Joseph. American Roman Catholic Bishop.
- \* Dwight, Jonathan. American engineer.
- \* Dyer, Nehemiah Mayo. Rear-Admiral of United States Navy.
- Eastman, Julia Arabella. American educator and writer. Died December; born, 1836.
- \* Eckert, Thomas Thompson. American financier.
- \* Edmands, J. Rayner. American astronomer.
- \* Edward VII.
- Edwards, Julian. American composer. Died September 5; born 1856.
- Ehrmann, François Emile. French artist. Died April; born, 1834.
- \* Elliott, Aaron Marshall. American philologist.
- Ellis, John Edward. English public official, member of Parliament. Died December 1; born, 1841.

- \* Ellis, John W. American banker.
- \* Entwistle, James. Read-admiral of the United States Navy.
- \* Evans, Dudley, President of Wells-Fargo Express Company.
- \* Everett, William. American educator and author.
- Ewell, John L. American clergyman and classical scholar. Died March 16; born, 1854.
- Exner, Julius J. Danish artist. Died November; born, 1825.
- Fabre, Hector. Commissioner-General of Canada. Died September 2; born, 1834.
- Fahlberg, Karl, German chemist. Died August 16; born, 1815.
- Fairchild, Lee. American poet and politician. Died March 19; born, 1860.
- Farabeuf, Louis-Hubert. French physician and writer on medical subjects. Died August; born, 1841.
- Farren, Sir Richard. English army officer and administrator. Died January; born, 1817.
- Farson, John. American banker. Died January 18, born, 1855.
- Faulks, James B. Jr. American educator and scientist. Died July 15; born, 1873.
- Fechet, Edmond Gustav, Lt. Col. American soldier. Died November 16; born, 1844.
- Feodora, Princess of Schleswig-Holstein. Sister of the German Empress. Died June 21; born, 1872.
- Ferry, John Farwell. American ornithologist. Died February 11; born, 1877.
- \* Figueras-Chiques, José María. Porto Rican jurist.
- Finn, Daniel E. New York politician. Died March 23; born, 1845.
- \* Fischer, Theobald. German geographer.
- Fisk, Pliny. American financier. Died September 7; born, 1827.
- Fiske, Arthur Irving. American educator. Died February 18; born, 1869.
- \* Flint, Robert. Scotch theologian.
- \* Flynn, Joseph Michael. American Roman Catholic priest.
- Foote, Wallace Turner, Jr. Former member of Congress from New York. Died December 17; born, 1864.
- Ford, Stephen V. R. American author and editor. Died June 5; born, 1836.
- \* Forestier-Walker, General Sir Frederick William Edward. English soldier.
- \* Foss, Cyrus David. American Methodist Episcopal bishop.
- \* Foster, John P. C. American physician.
- \* Foster, Judith Ellen (Horton). American lawyer.
- \* Foulkrod, William W. American public official.
- \* Fowler, Frank. American artist and writer.
- Fox, George L. American jurist. Died December 6; born, 1831.
- \* Fox, James D. American jurist.
- \* Frémiet, Emmanuel. French sculptor.
- \* French, Samuel Gibbs. American soldier.
- \* French, Winsor B. American soldier.
- \* Friedlander, Ludwig. German philologist.
- Friedlander, Michael. Hebrew scholar. Died December 6; born, 1840.
- \* Fuller, Melville Weston. Chief Justice of the Supreme Court.
- \* Furnivall, Frederick James. English philologist.
- \* Galle, Johann Gottfried. German astronomer.
- \* Gallison, Henry Hammon. American artist.
- Gama, Mingo. Chilean diplomat. Died October; born, 1844.
- \* Garrison, George Pierce. American historian.
- \* Gay, Winckworth Allan. American artist.
- Gelinas, Raphael. American Jesuit priest. Died April 14; born, 1829.
- Genth, Frederick A. American chemist. Died September 2; born, 1855.
- \* Gerhardt, Dagobert von. German soldier.
- Gernez, Desiré-Jean-Baptiste. French physician and chemist. Died November; born, 1834.
- \* Gibbon, Lardner. Naval officer.
- Giesbrecht, Friedrich. German theologian. Died September; born, 1852.
- \* Giffen, Sir Robert. Journalist and financier.
- \* Gilbert, Charles. French opera singer.
- \* Goessmann, Charles Anthony. American chemist.
- Goodwin, Richard La Barre. American painter. Died December 10; born, 1840.
- \* Goodyear, Ellsworth D. S. American soldier.
- Graham, George Edward. American war correspondent. Died January 6; born, 1867.
- \* Graham, Robert. American publicist and philanthropist.
- \* Grant, Hugh John. American public official.
- \* Grant, S. Hastings. American librarian and author.
- Gray, George R. American jurist. Died November 4; born, 1842.
- Green, Wharton. American public official, formerly member of Congress from North Carolina. Died in August; born, 1831.
- Gregory, J. H. American seedsman and writer. Died, February 20.
- \* Griggs, James Mathews. Representative in Congress.
- Grye, Bouquet de la. French engineer and writer. Died January; born, 1838.
- Guinness, H. Grattan. English commissioner and writer. Died June 22; born, 1835.
- \* Haberl, Franz Xaver. Roman Catholic clergyman.
- \* Haden, Sir Francis Seymour. English author.
- \* Hale, Susan. American artist and author.
- \* Halford, Albert James. American journalist.
- \* Hallberg, Carl Sevante Nicanor. American pharmacist.
- \* Hamdi Bey, Osman. Turkish statesman.
- \* Hammond, Edward Payson. American evangelist.
- \* Hanford, Benjamin. American Socialist.
- \* Hannay, James. Canadian historian.
- Hanson, John Fletcher. American soldier and railway official. Died December 15; born, 1840.
- Hardy, Henry. American engineer. Died October 23; born, 1837.
- Hardy, Manley. American naturalist and antiquarian. Died December 9; born, 1832.
- Harper, J. Abner. American publisher. Died October 2; born, 1832.
- \* Harrington, Timothy. English public official.
- Hartshorne, Albert. English antiquarian. Died December; born, 1839.
- \* Hasbrouck, Henry Cornelius. American soldier.
- Hasbrouck, Lydia Sayer. American physician

and dress reformer. Died August 25; born, 1827.

Hatzfeldt, Francis Edward Joseph Gabriel, Prince. German nobleman. Died, November 4; born, 1857.

\* Haupt, Ehrich. German Protestant theologian.

\* Hawke, James Albert. American naval officer.

\* Hawkins, Hamilton Smith. American army officer.

Hayden, George S. American jurist. Died November 26; born, 1849.

\* Hayes, Charles Harris. American theologian.

\* Haynes, John Henry. American archæologist.

Healy, Patrick. American Roman Catholic clergyman and educator. Died January 10; born, 1839.

\* Heap, David Porter. American soldier.

\* Heiberg, Hermann. German novelist.

Heilig, Karl. American painter and illustrator. Died November; born, 1863.

\* Henning, Gustavus Charles. American engineer.

\* Henzen, Wilhelm. German dramatist.

\* Herter, Christian Archibald. American pathologist.

\* Hevesi, Ludwig. German Hungarian journalist.

\* Hibbard, George Albee. American public official.

\* Hichborn, Philip. American naval officer.

Hickman, Sir Alfred. English ironmaster. Died March 11; born, 1830.

\* Hill, Adams Sherman. American educator.

\* Hill, David Bennett. American public official.

Hillhouse, William. English botanist. Died January; born, 1855.

Hiolin, Louis Auguste. French sculptor. Died June; born, 1847.

\* Hodenpyl, Eugene. American pathologist.

\* Hogg, James. An English publisher.

\* Holmes, Ludwig. Swedish-American clergyman.

Holtzmann, Heinrich Julius. German Protestant theologian. Died August; born 1832.

\* Homer, Winslow. An American artist.

\* Hopkins, Edward Muller. American Protestant Episcopal clergyman.

Hopkinson, John Prentiss. American educator. Died January 14; born, 1837.

Horner, W. B. English publisher. Died November 15; born, 1818.

Horowitz, Moses. A Hebrew playwright. Died, March 4; born, 1844.

\* Howe, Julia Ward. An American poet.

\* Hoyt, Henry Martin. An American lawyer.

\* Hoyt, Lucius Warner. An American lawyer.

\* Hoyt, Wayland. An American Baptist clergyman.

\* Huggins, Sir William. An English astronomer.

Hull, Joseph Janney. American physician. Died, August 26; born, 1833.

\* Hume, Martin Andrew Sharp. An English historical writer.

Humphrey, J. L. American Methodist Episcopal clergyman. Died September 5; born, 1820.

\* Hunnewell, James Frothingham. American merchant.

\* Hunt, William Holman. An English artist.

\* Hurd, Charles Edwin. American literary critic.

Hutchinson, Henry. An American physician. Died December 2; born, 1849.

Hutchinson, James L. American showman. Died September 3; born, 1846.

Hutchinson, John. Scotch sculptor, died May.

\* Huth, Alfred Henry. English bibliophile.

Huyler, John S. American candy manufacturer and philanthropist. Died October 1; born, 1846.

Hyde, James Nevins. American physician.

\* Ince, William. An English theologian.

Iwan-Müller, E. B. An English journalist and author. Died May; born, 1853.

James Louis. American educator. Died March 5; born, 1863.

\* James, William. American philosopher.

Jameson, Nathan C. American politician. Died August 27; born, 1849.

Jarvis, Samuel Farmer. American Protestant Episcopal clergyman. Died October 25; born, 1825.

Jauraschek, Franz von. American statistician. Died, February; born, 1840.

\* Jenkins, Edward. An English politician and author

\* Jessup, Henry Harris. A Presbyterian clergyman.

\* Jewett, Charles. An American surgeon.

Johnstone, Ralph. American aeronaut. Died November 17; born, 1875.

\* Joliet, Charles. A French journalist and author.

\* Jones, Pembroke. An American naval officer.

\* Jourdan, James. An American soldier.

Jubainville, Marie-Henri-Arbois de. French Celtic scholar. Died, March; born, 1825.

Jung, Julius. German historian. Died July; born, 1851.

Kahle, Karl. German philologist. Died December; born, 1861.

\* Kainz, Joseph. An Austrian actor.

\* Kasson, John Adams. An American diplomat.

\* Keese, G. Pomeroy. An American writer.

Kendall, Ezra. An American comedian. Died January 23; born, 1861.

\* King, Adam E. An American public official.

\* King, Edward. An Anglican bishop.

Kingsbury, Frederick J. An American public official and banker. Died, September 30; born, 1823.

Klizing, Michael. American Roman Catholic priest. Died January; born, 1867.

\* Klopsch, Louis. An American editor.

\* Knaus, Ludwig. A German genre painter.

\* Koch, Robert. A German bacteriologist.

\* Kohlrausch, Friedrich. A German physicist.

Krause, Wilhelm. German anatomist. Died February; born, 1834.

Kuhn, Julius. A German agriculturist. Died April 14; born, 1826.

\* La Farge, John. An American artist.

Lagarde, Pierre. A French musical director. Died December; born, 1855.

Lake, George Baker. An American jurist. Died July 17; born, 1820.

\* Lambert, Louis A. An American Roman Catholic clergyman.

Lamperti, Giovanni. An Italian singing teacher. Died March 18; born, 1840.

\* Landon, Melville de Lancey. An American humorist.

Lane, Franklin H. An American soldier and

public official. Died September 29; born, 1828.  
 \* Lathrop, John. An American jurist.  
 Lee, George C. An American banker. Died March 21; born, 1830.  
 Lemaire, Louis. A French artist. Died April; born, 1824.  
 \* Lenepveu, Charles Ferdinand. A French composer.  
 Letchworth, William P. American philanthropist. Died December 1; born, 1823.  
 \* Lexow, Clarence. An American lawyer.  
 Liebermann, Gustav. A Hebrew theologian. Died February 28; born, 1854.  
 \* Lindau, Rudolf. A German novelist.  
 \* Looftz, Ludwig von. A German painter.  
 \* Looker, Thomas Henry. An American naval officer.  
 Loper, Samuel Ward. An American art curator. Died April; born, 1836.  
 \* Lovering, William C. An American public official.  
 \* Low, Alexander. A Scotch jurist.  
 Lowry, Robert. An American public official, former Governor of Mississippi. Died January 19; born, 1830.  
 Lucas, Stanislaus. A German author. Died January; born, 1853.  
 Lueger, Karl. An Austrian Anti-Semite and Mayor of Vienna. Died March 10; born, 1844.  
 Macabee, William. Believed to have been the oldest veteran of the Civil War. Died October 5; born, 1803.  
 \* Macbeth, Robert Walter. An English artist.  
 \* McCalla, Bowman Hendry. An American naval officer.  
 \* MacDonald, Willis Coss. An American surgeon.  
 \* McEnery, Samuel Douglas. United States Senator from Louisiana.  
 McGraw, John H. Formerly Governor of Washington. Died June 23; born, 1850.  
 McGrew, James Clark. Former member of Congress from West Virginia. Died September 18; born, 1823.  
 \* MacGruder, Benjamin Drake. An American jurist.  
 \* MacLagan, William Dalrymple. An English prelate.  
 \* MacLaren, Alexander. An English minister.  
 \* MacNaughton, Myra (Kelly). An American author.  
 McTaggart, William. A Scotch artist. Died April; born, 1845.  
 \* McVickar, William Neilson. An American Protestant Episcopal bishop.  
 Magruder, David Lynn. An American soldier. Died November 22; born, 1825.  
 \* Mantegazza, Paolo. An Italian physiologist.  
 Maris, Willem. A Dutch artist. Died October; born, 1840.  
 Marnière, Jeanne-Marie-Françoise. A French novelist. Died March; born, 1855.  
 \* Marshall, James William. An American public official.  
 \* Marshall, Robert. An English soldier and playwright.  
 Martin, James. An American editor and public official. Died March 15; born, 1863.  
 Massi, Pius. A Roman Catholic clergyman, missionary and educator. Died September 8; born, 1836.  
 Matzen, Henning. A Swedish scholar and member of the Permanent Court of Arbitration at The Hague. Died July 18.

\* Matzke, John Ernst. An American scholar and educator.  
 \* Maulsby, David Lee. An American educator.  
 Maxwell, John Rogers. An American capitalist and railway official. Died December 11; born, 1846.  
 May, Moses. An American banker and philanthropist. Died January 9; born, 1834.  
 \* Mayor, John Eyton Bickersteth. An English scholar.  
 \* Mead, Larkin Goldsmith. An American sculptor.  
 \* Meade, Robert Leamy. An American army officer.  
 \* Meitzen, August. A German statistician.  
 Melstad, Tal Talson. Icelandic historian. Died February; born, 1813.  
 \* Merritt, Wesley. An American soldier.  
 \* Michaelis, Adolf. A German archæologist.  
 Mikszath, Koloman. A Hungarian writer. Died June.  
 \* Mills, Darius Ogden. An American financier.  
 Miyoshi, Shinrokuro. A Japanese naval architect.  
 Monsarrat, Nicholas. An American railroad official. Died September 30; born, 1839.  
 \* Montt, Pedro. President of Chile.  
 Moody, Charles Amandon. American editor and writer. Died November 16.  
 \* Moody, William Vaughn. An American poet and playwright.  
 \* Moréas, Jean. A French poet.  
 \* Morgan, Morris Hicky. An American philologist.  
 \* Mosso, Angelo. An Italian physiologist.  
 \* Mourentseff, Sergius Andreevitch. A Russian scholar.  
 Moynihan, Frederick. An American sculptor. Died January 9; born, 1843.  
 Mulholland, St. Clair A. An American army officer. Died February 17; born, 1839.  
 \* Munby, Arthur Joseph. An English poet.  
 \* Munger, Theodore Thornton. An American Congregational clergyman.  
 \* Munro, David Alexander. An American editor.  
 \* Munro, John Cummings. An American surgeon.  
 \* Munson, Welton M. An American horticulturist. Died September 9.  
 \* Nelson, Alexander Lockhart. An American mathematician.  
 Newell, Oscar Mapes. An American organist and composer. Died August 6; born, 1854.  
 Newman, J. S. An American agriculturist. Died May 11.  
 \* Newnes, Sir George. An English editor and publisher.  
 Niessen, Johannes. A German artist. Died September; born, 1829.  
 \* Nightingale, Florence. An English philanthropist and nurse.  
 \* Niles, William Harmon. An American geologist and educator.  
 \* Nutt, Alfred Trubner. An English scholar and publisher.  
 Nutting, Mary Olivia. An American librarian. Died February 13; born, 1830.  
 Oakes, Col. James. An American soldier. Died November 27; born, 1826.  
 Oates, William C. Former Governor of Alabama. Died September 9; born, 1826.  
 \* Obaldia, José Domingo de. President of the Republic of Panama.  
 O'Brien, Miles M. An American banker, mer-

chant and philanthropist. Died December 23; born, 1832.

Oelsner, Ludwig. German historian. Died April; born, 1832.

Oliver, Richard. An Australian public official. Died November 26; born, 1830.

\* Orchardson, Sir William Quiller. An English artist.

\* Overstreet, Jesse. An American public official.

\* Ozmun, Edward Henry. An American public official.

Page, Ralph B. An American historian and educator. Died August 8; born, 1878.

\* Paine, Robert Treat. An American philanthropist.

\* Patterson, Edward. An American jurist.

\* Patterson, Robert Wilson. An American editor.

\* Peak, John L. An American diplomat.

\* Peile, John. An English scholar and educator.

Penhallow, David Pearce. Canadian botanist and educator. Died October; born, 1854.

\* Perkins, James Breck. American official and historian.

Pflüger, Eduard Friedrich Wilhelm. A German physiologist.

Philippe, Charles Louis. A French novelist. Died January; born, 1875.

\* Picton, James Allanson. An English non-conformist minister.

Piffard, Henry Granger. American physician. Died; born,

Pilcher, William H. An American organist and composer. Died September 14.

\* Pitman, Benn. An inventor and author of works on phonography.

Planck, Gottlieb. A German jurist and educator. Died May; born, 1825.

Platt, James, Jr. An American philologist. Died; born,

\* Platt, Thomas Collier. An American public official.

Pope, Ralph Barlow. An American historian and educator. Died August 8; born, 1878.

\* Porter, Charles Talbot. An American mechanical engineer.

\* Porter, William Sidney. An American author.

\* Prior, Melton. An English artist and war correspondent.

\* Pritchett, Carr Waller. An American clergyman.

Putnam, Arthur A. An American jurist. Died October 21; born, 1830.

\* Quincy, Josiah Phillips. An American lawyer and publicist.

\* Raabe, Wilhelm. A German novelist and writer.

Railton, Herbert. An English artist. Died March 14; born, 1857.

Ranken, David A. An American philanthropist. Died August 18; born, 1862.

\* Rassam, Hormuzd. Syrian archæologist.

Reed, F. Dana. An American editor. Died October 22; born, 1848.

Reed, John Calvin. An American lawyer. Died January 12; born, 1837.

\* Reed, John J. An American naval officer.

\* Reich, Emil. An Austrian author and historian.

\* Reinecke, Karl. A German composer.

Renard, Jules. A French dramatist. Died May 21; born, 1864.

\* Rhoades, Lewis Addison. An American scholar and educator.

\* Richards, William Rogers. An American Presbyterian clergyman.

\* Riddle, George. An American Shakespearian reader.

\* Rising, Willard Bradley. An American chemist.

Rittweger, Franz. German author and journalist. Died January; born, 1829.

Robe, Charles F. An American military officer. Died July 2; born, 1841.

Robertson, Beverly Holcombe. A veteran of the Confederate army. Died November 12; born, 1827.

Robie, Jean. A Belgian academician. Died December; born, 1821.

\* Robinson, Sir Clifton. An English engineer.

\* Robinson, Franklin Clement. An American chemist and educator.

Robinson, William A. An American Congregational clergyman. Died October 19; born, 1840.

\* Rod, Louis-Edouard. French writer.

\* Roelker, Charles Rafael. An officer of the United States Navy.

Roger, Edmund Dawson. An English spiritualist and author.

\* Rolfe, William James. An American Shakespearian scholar.

\* Rolls, Charles Stewart. An English aviator and scientist.

Rossiter, Edward Van Wyck. An American capitalist and railway official. Died December 11; born, 1844.

Rovetta, Gerolamo. An Italian journalist and dramatist. Died May; born, 1850.

\* Rucker, Daniel Henry. An American army officer.

Saak, Louis. A German musical conductor. Died November; born, 1823.

\* St. John, Sir Spencer. An English diplomat.

\* Sambourne, Edward Linley. An English cartoonist.

\* Sanford, Samuel Simons. An American musician and educator.

Sanson, Justin Chrysostome. A French sculptor. Died November; born, 1833.

Sargent, James. An American inventor. Died January 12; born, 1825.

\* Satolli, Francesco di Paolo. A Roman Catholic prelate.

Sauerland, Volbert Heinrich. A German historian. Died June; born, 1839.

Savage, Anna Josephine. An American suffragist. Died July 7; born, 1843.

Schaeffer, Jacob. An American billiard expert. Died March 8; born, 1856.

\* Schiaparelli, Giovanni Virginio. An Italian astronomer.

\* Schilling, Johannes. A German sculptor.

Schlager, Antonia. An Austrian singer. Died August; born, 1859.

Schmidt, Cooper D. An American mathematician and educator. Died December; born, 1859.

Schoeffel, Agnes (Booth). An American actress. Died January; born, 1848.

\* Schürer, Emil. A German Lutheran theologian.

\* Scofield, Walter Keeler. An American naval officer.

\* Scott, Harvey W. An American newspaper editor.

\* Scott, William Earl Dodge. An American ornithologist.

- \* Scribner, Gilbert Hilton. An American lawyer and scientist.
- Secombe, William S. An American sea captain. Died February 10; born, 1849.
- \* Seligman, William. An American financier.
- Selmer, Jean. A Norwegian composer. Died August; born, 1844.
- \* Seward, George Frederick. An American financier.
- Seymour, George. A public official and financier of Jamaica. Died October 16; born, 1825.
- Sharp, Alexander. An American naval officer. Died February 11; born, 1855.
- \* Sharpe, Richard Bowdler. An English zoölogist.
- \* Shaw, Charles Hugh. An American botanist.
- Shelley, George Ernest. An English ornithologist. Died December.
- Shaughnessy, Michael. An American mine owner and public official. Died January 9; born, 1847.
- Shinn, George Wolfe. An American Protestant Episcopal clergyman and editor. Died December; born, 1839.
- \* Shoemaker, John Dietch. An American physician and educator.
- Silliman, Horace B. An American philanthropist. Died May; born, 1826.
- \* Simmons, Joseph Edwards. An American banker.
- Sinkler, Wharton. American physician.
- \* Skarbina, Franz. A German painter.
- \* Smith, Charles Sprague. American philanthropist and educator.
- \* Smith, Edgar Mead. An American publicist.
- \* Smith, Goldwin. An Anglo-American publicist.
- Smith, Jared. Brigadier-General, retired, United States army. Died December 18; born, 1840.
- Smith, John Wesley. Bishop of the American Methodist Episcopal Zion Church. Died, October 14.
- Smith, Lyman C. An American typewriter manufacturer. Died November 5; born, 1850.
- Snyder, William H. An American artist. Died November 4; born, 1830.
- \* Sone, Arasuke, Viscount. A Japanese statesman.
- \* Spellmeyer, Henry. A bishop of the Methodist Episcopal Church.
- Spence, Catherine Helen. An English journalist and author. Died April; born, 1836.
- \* Spencer, John Poyntz, Earl. An English nobleman.
- Spencer, Leonard G. An American zoölogist. Died April 16; born, 1838.
- \* Sprague, Augustus Brown Reed. An American soldier, public official and banker.
- Standing, William Henry. An American Protestant Episcopal clergyman and missionary. Died September; born, 1878.
- \* Stanley, W. E. An American public official.
- \* Stebbins, Roswell Otis. An American dentist and explorer.
- \* Steele, Robert Wilbur. An American jurist.
- \* Steeven, William Arnold. An American philologist and Biblical scholar.
- \* Stevens, John Austin. An American author.
- \* Stevenson, Paul Eve. An American writer.
- Stolberg-Wernigerode. President of the German Reichstag. Died February 19; born, 1840.
- \* Stone, Charles Francis. An American jurist.
- Stone, William A. An American educator. Died November 7; born, 1817.
- Studley, John B. An American actor. Died August 7, born, 1830.
- Sully, Daniel. An American actor and playwright. Died June 25; born, 1855.
- \* Sumner, William Graham. An American political economist.
- \* Swan, John Macallan. An English artist and sculptor.
- Swift, D. Wheeler. An American inventor. Died June 14; born, 1840.
- Talleyrand, Duc de, Comte de la Vaulx. French nobleman. Died February; born, 1832.
- \* Tayler, Robert Walker. An American jurist.
- \* Taylor, Horace A. An American politician and public official.
- \* Teck, Francis Joseph Leopold Frederick, Prince of.
- \* Terrell, Edwin Holland. An American lawyer and diplomatist.
- \* Thomas, Cyrus. An American anthropologist.
- \* Thomas, Joseph. An American inventor.
- \* Tirrell, Charles Quincy. American public official.
- \* Tobler, Adolf. Swiss philologist.
- \* Todd, Sir Charles. Australian astronomer.
- \* Tolstoy, Lyoff (Leo) Nikolayevitch, Count. Russian novelist.
- Tompkinson, James. English public official and member of Parliament. Died April 10; born, 1840.
- \* Treat, Charles Henry. An American public official.
- \* Tree, Lambert. American jurist and public official.
- \* Tremain, Henry Edwin. American soldier and author.
- Trowbridge, Francis Emory. Writer on finance. Died September 14; born, 1845.
- \* Truax, Charles Henry. An American jurist.
- \* Turley, Thomas Battle. American public official.
- \* Turnachon, Félix. French journalist, caricaturist and aviator.
- Twombly, Hamilton McKay. American financier. Died January 11; born, 1849.
- Ulke, Henry. American portrait painter. Died February 17; born, 1821.
- Usiglio, Emilio. Italian composer. Died, August.
- \* Van Cleave, James Wallace. American manufacturer.
- Vandal, Louis Jules Albert, Count. French historian and academician. Died August 31.
- \* Very, Edward W. American naval officer.
- \* Vezin, Hermann. American actor.
- \* Viardot-Garcia, Pauline. French singer.
- \* Victor, Orville James. American writer.
- Virgin, Edward Warren. American Methodist Episcopal clergyman, editor and writer. Died September 18; born, 1836.
- \* Vogüé, Marie Eugène Melchoir, Vicomte de. French litterateur and academician.
- Volhard, Jakob. German chemist. Died January; born, 1834.
- \* Von Leyden, Ernst. German pathologist.
- \* Vorse, Albert White. American author.
- \* Vose, George Leonard. American educator and engineer.
- Vuagnat, François. Swiss animal painter. Died November.
- Wachter, Frank C. Former member of Congress from Maryland. Died July 1; born, 1861.

\* Waddell, Louise (Forsslund). American writer.

\* Wake, Charles Staniland. English anthropologist.

Walker, Edwin. American lawyer. Died September 3; born, 1832.

Walsh, Marie (Young). American playwright and novelist. Died May 8.

\* Walsh, Michael. A Roman Catholic educator and editor.

\* Walsh, Thomas F. American mine owner and financier.

\* Walter, Arthur Fraser. English newspaper proprietor.

\* Ward, John Quincy Adams. American sculptor.

\* Warner, Adoniram Judson. American soldier and public official.

\* Warner, Beverly Ellison. American Protestant Episcopal clergyman.

\* Webster, Sidney. American lawyer and publicist.

\* Weir, Levi Candee. Former President of Adams Express Company.

Werts, George Theodore. American lawyer, former Democratic Governor of New Jersey. Died January 14; born, 1846.

Wheeler, Frederick Merian. American engineer and inventor. Died September 16; born, 1848.

\* White, Anna. American Shaker.

\* Whitman, Charles Otis. American zoologist.

\* Whitney, James Lyman. American librarian.

\* Whitney, Myron W. American singer.

Whittemore, John H. American manufacturer. Died May 8; born, 1837.

\* Whittredge, Worthington. American artist.

Wiggin, Frederick Holme. American surgeon. Died October; born, 1853.

\* Will, August. American artist.

\* Willard, De Forest. American surgeon and philanthropist.

\* Williams, Sir Edward Leader. English engineer.

\* Williams, George Henry. American lawyer.

Williams, Juan. Italian admiral, known as "Father of the Italian Navy." Died June 25.

Wilson, Francis H. American public official, former member of Congress from New York. Died September 26; born, 1843.

\* Winans, Samuel Ross. American educator.

\* Wingfield, Sir Edward. English public official.

\* Wolff, Julius. German poet and novelist.

\* Wolverton, Simon P. American public official.

Wood, Oliver Ellsworth. American soldier, brigadier-general, retired. Died December 4; born, 1844.

Woodbury, John Page. American bibliophile and art collector. Died June 18; born, 1827.

Woodman, Charles H. American writer. Died December; born, 1847.

Woodworth, James T. American financier. Died April 10; born, 1840.

\* Wright, Edmund. English mathematician.

\* Wright, Edward Perceval. Irish botanist. Died March; born, 1834.

\* Wulker, Richard Paul. German philologist.

\* Wurtz, Henry. American chemist.

Wyatt, Julia. American actress. Died December 1.

\* Wyman, Isaac O. American philanthropist.

Yon, Edmond Charles. French artist. Died March; born, 1862.

Zabriskie, Jeremiah Lott. American Dutch Reformed clergyman. Died April 2; born, 1834.

Zacharie, Frank C. American lawyer and former United States Senator from Louisiana. Died January 6; born, 1839.

\* Ziegler, Clara. German actress.

**NEGRO EDUCATION.** See **EDUCATION IN THE UNITED STATES.**

**NELIDOFF, ALEXANDER J.** Russian Ambassador to France, died September 17, 1910. He was born in 1846 and was educated at the University of St. Petersburg. When only nineteen years of age he entered the diplomatic service. His first work of importance was as attaché of the Russian Foreign Office in St. Petersburg. He was placed in charge of a diplomatic mission to the Orient and his name appears as a signer of the treaty of San Stefano. For sixteen years subsequent to 1881 he was Russian Ambassador at Constantinople. In 1827 he was transferred to the Russian Embassy at Rome and remained there until he was assigned to Paris in 1903. He was a noted collector of Greek and Byzantine gold work and was one of the greatest connoisseurs of his day of that form of art.

**NELSON, ALEXANDER LOCKHART.** American mathematician and educator, died August 31, 1910. He was born in Augusta county, Va., in 1827, and graduated from Washington College (now Washington and Lee University) in 1849. In 1853-4 he was acting professor of mathematics at the University of Virginia. From 1854 to 1906 he was professor of mathematics in Washington and Lee University. In the latter year he was made professor emeritus. He wrote the chapter on Surfaces of the Second Order in Nichols's *Analytic Geometry* (1893).

**NEODYMIUM.** See **ATOMIC WEIGHTS.**

**NEON.** See **ATOMIC WEIGHTS.**

**NESTORIAN MONUMENT.** See **EXPLORATION, Asia.**

**NETHERLANDS, THE (or HOLLAND, KINGDOM OF).** A constitutional monarchy of western Europe. Capital, The Hague.

**AREA AND POPULATION.** Total area, 12,648 square miles; population (1899), 5,104,137; in 1909, 5,853,037. Marriages (1909), 41,686; births, 170,766; deaths, 80,283; emigrants, 2939. The Hague is the capital, with (December 31, 1908) 259,012 inhabitants; Amsterdam and Rotterdam, the commercial centres, had 565,589, and 411,635 respectively; Utrecht, 116,783; Groningen, 75,370; Haarlem, 70,348.

**EDUCATION.** The educational system is peculiar, in that the state encourages and subsidizes private elementary instruction rather than public; supplying the latter, however, in districts in which private instruction is lacking, through local taxation. Primary instruction is obligatory, and, in public schools, free. Schools in 1907-8: infant, 160 public (28,032 pupils) and 1025 private (97,819); primary, 3274 public (17,750 teachers, 563,187 pupils) and 1885 private (9773 and 316,088); schools for adult working people (not free), 302 (2364 and 31,375); middle-class schools, 89 (1437 and 14,071); universities, 4 (public), with 300 instructors and 3475 students (506 females). There are besides numerous special schools, and a private university with 180 students. Three-fifths of the population are members of the several Reformed churches; the remainder are Roman Catholics, with (1899) 103,988 Jews, of whom Amsterdam

has about 70,000. Religious liberty prevails.

**AGRICULTURE.** The land is for the most part low and flat, intersected by a network of water-courses. Intensive agriculture is carried on, the productive area being estimated (1908) at 2,401,194 hectares (arable land, 862,780 hectares; pastures, 1,204,433; gardens and orchards, 74,575; forest, 259,446). Area under staple crops is given below (w.=winter; s.=spring) for three years, in acres:

	1908	1909	1910
Rye (w.) .....	475,869	548,224	535,553
Rye (s.) .....	6,264	5,221	10,230
Wheat (w.) .....	126,813	110,141	115,086
Wheat (s.) .....	12,229	16,543	16,845
Barley (w.) .....	57,921	50,750	50,832
Barley (s.) .....	16,650	19,457	18,886
Oats .....	345,518	349,744	345,066
Potatoes .....	395,087	398,478	394,902
Sugar beets .....	118,000	138,060	135,378
Buckwheat .....	40,982	38,373	32,739

No returns for yield are available.

Since 1870 the cultivation and export of bulbs has been a growing industry, and in recent years has reached enormous proportions. An average annual production of 176,000,000 pounds of cheese is reported of which two-thirds is exported.

**OTHER INDUSTRIES.** The state coal mines yielded (1908) 908,201 metric tons, valued at 6,071,000 guilders. Distilleries in 1908, 529; sugar refineries, 11; beet-sugar refineries 27; salt works, 35; breweries, 449; vinegar manufactories, 74. Vessels engaged in all fisheries (1908), 5356; persons, 20,502; oyster catch, 2,131,257 kilos; value of North Sea herring fisheries, 8,159,050 guilders. Diamond-cutting is carried on at Amsterdam.

**COMMERCE.** The special trade for three years is given in guilders below:

	1907	1908	1909
Imports ..	2,671,698,498	2,823,740,015	3,137,400,000
Exports ..	2,212,141,046	2,181,056,860	2,454,700,000

The trade for 1908 and 1909 is detailed below in thousands of guilders (C. & B.=coin and bullion):

	Imports		Exports	
	1908	1909	1908	1909
Foodstuffs ....	657,300	776,700	649,800	754,100
Raw materials..	1,097,800	1,141,400	784,200	838,900
Mfcs. ....	514,300	508,300	424,100	442,900
Misc. ....	539,400	681,300	312,900	411,900
Total mdse..	2,808,800	3,107,700	2,171,000	2,447,800
C. & B. ....	14,900	29,700	10,000	6,900
Total .....	2,823,700	3,137,400	2,181,000	2,454,700

Details of the trade in cereals, etc., in thousands of guilders, for 1907 and 1908:

	Imports		Exports	
	1907	1908	1907	1908
Wheat .....	190,060	142,085	158,210	105,837
Flour .....	62,686	74,174	12,954	14,493
Rye .....	37,977	33,707	24,407	18,921
Barley .....	47,520	51,490	35,560	36,949
Oats .....	22,400	24,270	20,640	20,339
Potato-flour ..	7,035	6,904	29,253	25,890
Buckwheat .....	1,681	1,862	663	486
Flax .....	1,583	644	31,145	31,451
Beetroot .....	100	321	2,200	2,803
Bulbs, etc. ....	2,211	1,805	13,082	12,621
Vegetables .....	4,200	5,100	48,000	60,600

Principal countries of origin and destination, with value of trade in thousands of guilders:

	Imports		Exports	
	1908	1909	1908	1909
Germany ..	694,600	743,400	1,082,100	1,279,900
Russia .....	280,100	557,600	13,100	13,700
D. E. Indies	405,300	425,200	89,100	87,900
Gr. Brit. ...	294,400	291,500	476,300	485,300
U. States ...	322,200	290,600	81,100	99,500
Belgium ...	270,800	289,900	280,500	288,600
B. E. Indies	73,600	102,500	1,500	2,900
Spain .....	70,400	78,000	6,100	5,800
Brazil .....	44,600	40,100	1,900	2,900
Rumania ...	59,200	39,100	4,600	7,300
Sweden .....	45,700	34,700	11,800	15,600
Norway ...	19,400	33,300	11,000	13,200
France .....	34,500	28,700	15,900	18,800
Africa .....	7,500	11,300	10,800	12,900
Italy .....	8,100	9,900	17,400	23,100
Turkey .....	7,100	1,500	15,200	19,300
Other .....	186,300	152,100	62,600	78,000
Total ....	2,823,700	3,137,400	2,181,000	2,454,700

The Netherlands is a free-trade country, a few duties only being levied and these of a fiscal character. Vessels entered (1908), 13,801, of 13,034,988 tons (Dutch, 3991, of 3,513,450); cleared, 13,821, of 12,939,762 (Dutch, 4052, of 3,502,122).

**COMMUNICATIONS.** Railroads open to traffic, January 1, 1910, 3111 kilometres. State telegraph lines, 7359 kilometres; wires, 35,562; telephone wires, 197,096; telegraph offices, 1350; post-offices, 1482. Length of canals, 1907 miles; of roads, 2943. It is estimated that something like 90 per cent. of the freight traffic is by the canals and the river Rhine.

**FINANCE.** The unit of value is the guilder (or florin), valued at 40.2 cents. Financial statistics for three years are given in guilders (1909 and 1910 estimates):

	1908	1909	1910
Revenue .....	183,044,390	184,728,351	188,326,473
Expenditure ...	194,037,353	209,576,140	207,187,206

Estimates for 1911 are given as follows, in thousands of guilders:

	1000 gl.		1000 gl.
Revenue		Expenditure	
Direct taxes ....	45,695	Debt .....	37,117
Excise .....	58,230	Interior .....	36,363
Stamps, etc. ....	27,770	Int. Admn. ....	33,780
Customs .....	13,244	Finance .....	26,844
Domains .....	1,660	Justice .....	11,006
Posts .....	15,553	Agriculture .....	8,631
Telegraphs, etc. ...	4,201	Railways .....	3,821
Railway .....	4,188	Foreign Affairs..	1,241
Pilot dues .....	3,100	Civil list .....	945
Lottery .....	654	Cabinet, etc. ....	751
Mines .....	31	War .....	29,939
Misc. ....	19,770	Navy .....	20,214
Total .....	194,237	Col. Office .....	3,064
		Misc. ....	50
		Total .....	213,756

The debt stood, 1911, as follows: capital, 1,116,652,350 guilders; interest, 32,147,544; amortization, 4,969,500.

The Bank of the Netherlands, a private institution, is the sole bank of issue. It stood, March 31, 1909, as follows: capital, 20,000,000 guilders; reserve, 5,500,000; notes in circulation, 273,578,470; total exchanges, 680,060,202; stock of gold (July), 121,420,000, of silver, 42,270,000. The state postal savings bank had (end of 1908) 1,401,670 depositors, and 151,638,000 guilders deposits.

**ARMY.** The active army of Holland is maintained by voluntary enlistment and conscription and is really a militia organization for home defense. The effective army varies considerably in the course of the year with the system of suc-

cessive annual levies. The budget for 1911 indicated that on July 1, 1910, the effective army was as follows: The active army, 2021 officers, 21,964 men; the reserve, 671 officers, 99,951 men; the reserve cadres 671 officers, 1164 men; the Landwehr 414 officers, 49,591 men, making a total of 3106 officers and 172,670 men. The strength of the gendarmerie was 7957 men and 372 foot soldiers.

The budget of war for 1911 amounted to 29,939,150 florins (62,872,215 francs) for the metropolitan army, an increase of 1,282,161 florins over the similar credits voted in 1910. This increased appropriation contemplated additional salaries for officers and men, pensions and other expenditures. It was proposed to reorganize the horse artillery so that with rapid fire guns there would be six gun batteries in place of four, the regiments being divided into 2 groups of three 6-gun batteries. There will be 4 field artillery regiments divided into 3 groups of 4 3-gun batteries. It was proposed to create two new mounted divisions of 8 machine guns each. Each of the 4 divisions will also have a section of machine guns.

A royal decree of October 11 and an official order of November 8 fixed the annual contingent for 1911 at 17,500 men, of which 12,300 were required for complete service and 5200 for 4 months' duty. Among those first mentioned, 400 were to be assigned to the navy. There were 55,096 enrolled as liable for military service.

**GOVERNMENT.** The executive power rests exclusively in the sovereign acting through a responsible ministry. The legislative body is the States-General, consisting of an upper or first chamber of 50 members, and a second chamber of 100 directly elected deputies. The reigning sovereign (1910), Queen Wilhelmina, was born August 31, 1880; succeeded her father, November 23, 1890; was enthroned September 6, 1898; married, February 7, 1901, Prince Henry of Mecklenburg-Schwerin. Heiress-apparent, Princess Juliana, born April 30, 1909. The Ministry (1910), constituted February 12, 1908, is as follows: Minister of the Interior, Dr. Th. Heemskerk; Foreign Affairs, Jhr. Dr. R. de Maere van Swinderen; Finance, Dr. M. J. C. M. Kolkman; Justice, Dr. A. P. L. Nelissen; War, Major-General W. Cool; Marine, Vice-Admiral J. Wentholt; Waterways, Dr. L. H. W. Regout; Agriculture, Industry, and Commerce, A. S. Talma; Colonies, J. H. de Waal Malefijt.

**HISTORY.** The Royal Commission for the revision of the constitution, promised by the government in September, 1909, was created in March, 1910. In the same month the lower house voted unanimously for a Royal Commission to investigate the state of the national defenses. There was some criticism of the foreign policy of the government, on the ground that the government ought to have inserted provisions in the North Sea Convention to insure the national safety. The Foreign Minister replied on July 8, condemning the criticism as an attempt to stir up distrust of the German policy. Allegations against Dr. Kuyper, the former Premier, implying corrupt motives in granting decorations, were investigated at his instance by a Court of Honor, which reported that there was no evidence of such corruption. The States-General was opened on September 21 with a speech from the throne in which the legislative programme foreshadowed increased expenditure in several departments, and meas-

ures for customs tariff revision and a general income tax. Other features were, workmen's insurance against illness and old age, revision of copyright laws, changes in the administration of the Dutch East Indies and an education bill.

**NETHERSOLE, OLGA.** See **DRAMA.**

**NEUTRAL PRIZES.** See **LONDON, DECLARATION OF.**

**NEVADA.** One of the Western Division of the United States. Its area is 110,590 square miles. Its capital is Carson City.

**POPULATION.** The population in 1910, according to the Thirteenth Census, was 81,875. The increase in the decade 1900 to 1910 was 93.4 per cent. The State ranks fiftieth in point of population among the States, whereas in 1900 it ranked fifty-first. The population of the larger cities and towns will be found in the tables of the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** The most important mineral products of the State are gold and silver. In 1910 the value of the gold production was estimated by the Director of the Mint at \$17,941,643, as compared with a value of \$16,386,200 in 1909. The silver produced in 1910 was 9,346,256 fine ounces, as compared with 10,119,200 fine ounces in 1909. There were produced in 1909 53,849,281 pounds of copper, a remarkable increase over the product of 1908, which was 13,241,372 pounds. Reports for 1910 indicate a substantial increase in the output of copper in that year. The production of lead in 1909 amounted to 4698 tons, as compared with 3796 tons in 1908. There were also produced 825 tons of spelter as compared with 328 tons in 1908. Other metals produced in some quantities are precious stones and salt.

**AGRICULTURE.** The acreage, production and value of the principal crops are given in the following table:

	Acreage	Prod. bu.	Value
Spring wheat, 1910...	40,000	1,160,000	\$1,284,000
1909 ..	36,000	1,033,000	1,074,000
Oats, 1910.....	7,000	313,000	197,000
1909 .....	7,500	280,000	165,000
Barley, 1910.....	9,000	360,000	252,000
1909 .....	8,000	304,000	228,000
Potatoes, 1910 .....	15,000	2,130,000	1,257,000
1909 .....	3,000	54,000	459,000
Hay, 1910.....	231,000	785,000 <sup>a</sup>	8,478,000
1909 .....	210,000	194,000	5,187,000

<sup>a</sup> Tons.

**FINANCE.** The report of the State treasurer showed a balance in the treasury January 1, 1910, of \$560,785. The receipts for the fiscal year ending December 31, 1910, amounted to \$1,103,575 and the total disbursements to \$1,008,829, leaving a balance in the treasury December 31, 1910, of \$655,531. The chief expenditures were for education, for the maintenance of State institutions and for executive expenses.

**CHARITIES AND CORRECTIONS.** The charitable and correctional institutions under the control of the State and their expenses in 1910 were as follows: State Prison, \$69,719; State Orphans' Home, \$15,000; Hospital for Mental Diseases, \$9026. A new State prison was in course of construction during the year and there was expended on this \$30,376. The State spent for the support of the indigent insane, \$4583.

## POLITICS AND GOVERNMENT

There was no session of the legislature in 1910. The Republicans nominated for governor, Tasker L. Oddie, while the Democrats nominated Denver S. Dickinson. In the elections on November 8, Mr. Oddie was elected by a vote of 10,411, as against 8796 cast for Mr. Dickinson. The entire Republican ticket was elected. In the vote for United States Senator George D. Nixon, Republican, received 9765 votes, while Key Pittman, Democrat, received 8632. For Congressman-at-Large E. E. Roberts, Republican, received 11,068, against 7682 for Charles S. Sprague, Democrat. As a result of the election the Democrats have a majority of two in the State Senate, while the Republicans have a majority of five in the House, leaving a Republican majority of three on joint ballot.

**STATE OFFICERS.** Governor, T. L. Oddie; Lieutenant-Governor, G. C. Ross; Secretary of State, George Brodigan; Treasurer, William McMillan; Comptroller, Jacob Eggers; Superintendent of Public Instruction, J. E. Bray; Attorney-General, C. H. Baker—all Democrats, except Oddie, Eggers and McMillan, Republicans.

**JUDICIARY.** Supreme Court: Chief Justice, Frank H. Norcross, Republican; Justices, George F. Talbot, Democrat; James Sweeney, Democrat; Clerk, Joe Josephs, Democrat.

**STATE LEGISLATURE, 1911.** Senate, Democrats 11; Republicans 9; Democratic majority 2. House, Democrats 22; Republicans 27; Republican majority 5. Joint Ballot, Democrats 33; Republicans 36; Republican majority 3.

**NEVILL, Lady DOROTHY.** See **LITERATURE, ENGLISH AND AMERICAN, Biography.**

**NEW BRUNSWICK.** A maritime province of Canada (since July 1, 1867). Area, 27,985 square miles. Population (1901), 351,120. Capital, Fredericton. For details, see **CANADA.** The executive authority rests in a lieutenant-governor, appointed by the Governor-General of Canada and acting through the Executive Council (responsible ministry). The unicameral Legislative Assembly consists of 46 members elected for four years. In 1910, Lieutenant-Governor Lemuel John Tweedie (appointed March 2, 1907); Premier, J. Douglas Hazen. A serious disaster occurred early in July in Campbellton, a town of 5000 people, which was virtually destroyed by fire, with a loss of eight lives.

**NEW CALEDONIA.** An island in Melanesia, constituting, with its dependencies, a French colony. It contains a penal settlement, to which no convicts have been sent since 1896. Area, 7650 square miles; population (1906), 53,346 (22,177 whites, 3336 colored immigrants, 27,833 natives). Penal population, 7034 (6741 men, 293 women). Capital, Nouméa, with (1901) 6968 inhabitants (4010 free). Schools: 40 primary, with 2042 pupils; native, 28, with 1815. The college at Nouméa has 70 students. More than half the area is wild and mountainous; 1600 square miles are under pasture, 1600 cultivable land, 500 exploited forest. The land is divided into the state domain, the penal settlement, and the native reserve. Coffee, corn, tobacco, sugar, grapes, manioc, and pineapples are grown; wheat, rubber, and cotton are being introduced. There are about 75,000 cattle and 2000 sheep.

Mining concessions (1908), 124, with 2200 workmen, mostly Japanese. Mineral export (1908): nickel ore, 120,026 metric tons; cobalt ore, 3347; chrome ore, 46,480; copper ore, 10; iron ore, 65; other, 1333. Imports and exports (1908), 9,307,000 and 10,111,000 francs respectively.

At the port of Nouméa (1908), 129 vessels, of 196,582 tons entered, and 140, of 217,358, cleared. Railway, 10 miles open; telegraph, 580; telephone, 115; post-offices, 39. The revenue and expenditure (1907) balanced at 3,974,000 francs; debt, January 1, 1907, 7,560,000 francs. Expenditure of France on the colony (1910), 3,287,984 francs (1,574,700 for the penal settlement). Military force, 436 Europeans. The colony is administered by a governor (1910, J. Richard).

**Dependencies:** The Isle of Pines (area, 58 square miles, population about 600); the Wallis Archipelago (40 square miles; about 4500 inhabitants); the Loyalty Islands (800 square miles); the Huon Islands, almost barren; Futuna and Alofi (about 1500 inhabitants).

**NEWFOUNDLAND.** An island off the northeast coast of North America; the oldest of the British colonies. Capital, St. John's.

**AREA, POPULATION, ETC.** Area, 42,734 square miles; population (1901), 217,037; estimated at end of 1908, 233,012; at end of 1909, 234,588. A portion of Labrador (120,000 square miles) is dependent on Newfoundland, with a population (1901) of 3634; estimated, 1908, 4035; 1909, 4026. St. John's had (1901) 31,501 inhabitants; Harbour Grace, 5184; Carbonear, 3703. Birth-rate (1907), 29.5; death-rate, 17.6 per 1000. Immigrants (1908), 9993; emigrants, 10,247. Total attendance at schools of all kinds, 43,811; total expenditure on education, including government grants, fees, etc., \$281,655.

**INDUSTRIES.** Of the total Newfoundland population (1901), 62,674 were located on or near the coasts and engaged in the fisheries—seal, cod, and herring. There were under cultivation 85,533 acres, sown chiefly to root crops, hay, barley, and oats, and engaging 2475 farmers. The livestock numbered 8851 horses, 32,767 cattle, 78,052 sheep, 34,679 swine. Mining engaged 1576 persons. The mineral deposits are of great value, but are not extensively exploited. Copper, coal, iron and silver and lead ore abound. Sawmills have been established in the timber tracts, and pulp and paper mills are in process of erection. The pulp and paper mills at Grand Falls, on the Exploits River, is one of the largest and best equipped in the world; it represents a capital of \$6,000,000, and supplies the paper for Lord Northcliffe's publications. The new railways are opening up the country in every direction.

**COMMERCE AND COMMUNICATIONS.** The trade for three fiscal years ended June 30 is given below:

	1906-7	1907-8	1908-9
Imports ....	\$10,426,040	\$11,516,111	\$11,402,337
Exports ....	12,101,161	11,815,769	10,848,913

The principal articles of the trade for 1908-9 are as follows: Imports: flour, \$1,776,038; textiles, \$1,437,938; provisions, \$1,270,967; coal,

\$605,997; kerosene and other oils, \$435,793; machinery, \$351,078; molasses, \$322,966; hardware, \$256,342; leather, \$226,680; animals, \$178,099. Exports: fish, \$7,962,263 (cod, \$7,398,536); iron, \$968,132; cod, seal, and whale oil, \$786,300; sealskins, \$433,620; copper, \$220,895; furs, undressed, \$45,292. The United States furnished imports valued at \$4,232,680, and received exports valued at \$848,176; Canada, \$3,937,009 and \$1,542,090; Great Britain, \$2,493,670 and \$1,426,229; Portugal, \$21,731 and \$1,590,184; Brazil, \$390 and \$1,719,082. Tonnage entered and cleared (1908-9), 1,858,165 (British, 1,042,890).

Government railway lines, 638 miles. The transinsular line runs to Port-aux-Basques, with branches to principal towns and settlements. Additional extensions are under construction, the cost to approximate \$4,000,000. A fleet of eight first-class steamers connects the island with the mainland. Telegraph lines, 3088 miles; telephone, 350.

**FINANCE AND GOVERNMENT.** The following table shows the revenue and expenditure for three fiscal years (1908-9 budget):

	1906-7	1907-8	1908-9
Revenue .....	\$2,837,142	\$2,829,019	\$2,947,869
Expenditure .	2,711,788	2,785,835	2,947,869

The debt stood, June 30, 1909, at \$23,056,573. The Newfoundland Savings Bank had (1908) 7381 depositors and \$2,631,450 deposits; three of the banks at St. John's also conduct savings departments.

The colony is administered by a governor (1910, Sir Ralph Chamneys Williams), aided by a responsible executive council of nine and a legislative council of not more than twenty members, appointed for life. The House of Assembly has 36 members, popularly elected. Premier (1910), Sir Edward P. Morris.

The three-hundredth anniversary of the settlement of the country by John Guy was celebrated during the latter part of August and an industrial exhibition was held at Harbour Grace. By the end of October it became known that the Labrador fishing catch was a complete failure and that the whole cod-fishery upon which Newfoundland mainly depends was likely to show a shortage of nearly 20 per cent. Other industries of the country, however, were prosperous.

**NEW GUINEA.** The largest island of the East Indies. It is divided into British, Dutch, and German dependencies. See DUTCH EAST INDIES; GERMAN NEW GUINEA; PAPUA, and EXPLORATION, paragraph on *Australasia*.

**NEW HAMPSHIRE.** One of the North Atlantic Division of the United States. It has an area of 9341 square miles. Its capital is Manchester.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 430,572, as compared with 411,588 in 1900 and 376,530 in 1890. The increase in the decade from 1900 to 1910 was 4.6 per cent. The State ranks thirty-ninth in point of population, whereas in 1900 it ranked thirty-seventh. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** The most important mineral product of the State is granite, of which

there was produced in 1908, the latest year for which statistics are available, an amount valued at \$867,028. The clay products in the same year were valued at \$371,640. Other mineral products of some value are coal products, mineral waters, mica, pottery, precious stones and whetstones.

**AGRICULTURE.** The acreage, product and value of the leading crops are given for 1909 and 1910 in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	31,000	1,426,000	\$ 984,000
1909.....	30,000	1,053,000	800,000
Oats, 1910.....	14,000	599,000	305,000
1909.....	14,000	441,000	282,000
Barley, 1910.....	2,000	52,000	40,000
1909.....	2,000	50,000	40,000
Buckwheat, 1910.....	2,000	62,000	38,000
1909.....	2,000	44,000	33,000
Potatoes, 1910.....	21,000	3,150,000	1,638,000
1909.....	21,000	2,730,000	1,747,000
Hay, 1910.....	640,000	768,000a	12,134,000
1909.....	640,000	621,000	11,116,000
Tobacco, 1910.....	100	172,000b	25,800
1909.....	100	170,000	25,000

a Tons. b Pounds.

**CHARITIES AND CORRECTIONS.** The institutions under State and county control in the State, with their population in 1910, are as follows: New Hampshire Industrial School, 211; New Hampshire School for Feeble-Minded Children, 172; New Hampshire Soldiers' Home, 90, and the New Hampshire State Sanatorium. In addition, the State sends to institutions in other States certain of its deaf, dumb and blind for education. These institutions are the American School for the Deaf at Hartford, Conn., the Maine School for the Deaf at Portland, Maine, the Clarke School for the Deaf at Northampton, Mass., the Perkins Institution and Massachusetts School for the Blind at Boston, the Connecticut Institution and Industrial School for the Blind at Hartford, Conn., and the New England Industrial School. There were in various institutions of the State on August 31, 1910, 1199 children in orphans' homes and asylums. There were in the county jails of the State in 1910 699 prisoners. The expenses of these jails during the fiscal year amounted to \$34,386.

#### POLITICS AND GOVERNMENT.

There was no meeting of the State legislature in 1910, as the sessions are biennial and the last was held in 1909. The next session begins in January, 1911.

**CONVENTIONS AND ELECTIONS.** Elections were held in 1910 under the new primary election law passed in 1909. The chief contest in the State was for the Republican nominations for governor and for a member of Congress in the First District. For a number of years the progressive wing of the New Hampshire Republicans has been fighting against control of the party by railroad corporations and other allied interests. Prominent in this wing of the party has been Winston Churchill, the novelist. While the progressives had not been successful heretofore in the elections, they had succeeded in securing the passage of a primary election law, which was designed to give the voters a fair chance as against the machine politicians. The candidate of the progressive wing of the party for the nomination was State Senator Robert P. Bass, while the candidate of the Republicans was Colonel Bertram Ellis. In the primaries the reform wing won a substantial

victory and Senator Bass was nominated for the governorship. The Democrats renominated Clarence E. Carr. Sherman E. Burroughs, progressive, hotly contested the renomination of Congressman Cyrus A. Sulloway, but lost. The Republican Convention, which met at Concord on September 27, was one of the most harmonious in the history of the State. It was made up of the nominees for State and legislative offices and as many other delegates as there are members of the legislative house. The platform adopted endorsed the Taft administration, declared for the creation of an interstate commerce and customs court, demanded tariff reform in conformity with the national platform of 1908, favored the national forest reserve bill, and Canadian reciprocity in tariff relations, demanded effective conservation of national resources and favored the establishment of a parcels post. It called for a permanent State tax commission to replace the present board of equalization and for the appointment of a public utilities commission to replace the present board of railroad commissioners; also for an employers' liability and a workmen's compensation act. Measures for the prohibition of campaign contributions by corporations were recommended, as well as a strengthening of the corrupt practices act, to do away with the buying of votes. It favored the constitutional amendment authorizing a Federal income tax. In the elections on November 8 the Republicans carried the State by a plurality of 7171 votes for Mr. Bass for governor, re-electing both Republican Congressmen, a Republican executive council, and a legislature Republican in both branches, but with a greatly reduced party majority.

**STATE OFFICERS.** Governor, Robert P. Bass; Secretary of State, Edward N. Pearson; Treasurer, Solon A. Carter; Auditor, William B. Fellows; Adjutant-General, Harry B. Cilley; Attorney-General, Edwin G. Eastman; Superintendent of Education, Henry O. Morrison; Commissioner of Agriculture, Nahum I. Bachelder; Commissioner of Insurance, George H. Adams—all Republicans.

**JUDICIARY.** Supreme Court: Chief Justice, Frank N. Parsons, Republican; Associate Justices, Robert J. Peaslee, Democrat; Reuben E. Walker, Republican; John E. Young, Republican; George H. Bingham, Democrat; Clerk, A. J. Shurtleff, Republican.

**STATE LEGISLATURE, 1911.** Senate, Republicans 20; Democrats 4; Republican majority 16. House, Republicans 272; Democrats 117; Republican majority 155. Joint Ballot, Republicans 292; Democrats 121; Republican majority 171.

**NEW HEBRIDES.** A group of Melanesian islands, jointly administered by France and Great Britain. Area, 5106 square miles; population, 70,000. Corn, coffee, vanilla, and coconuts are produced. Sulphur is abundant in some places. There are French and English courts, with a judge foreign to both nations; and the French and English high commissioners for the Pacific govern the islands through resident commissioners. French resident commissioner (1910), M. Noufflard; English, M. King. The joint court was opened in November. Missionaries in the New Hebrides reported violations of the Anglo-French convention by French exploiters of labor, who, they said, had sold liquor and cartridges to the natives, and kidnapped their wives and carried away their children.

The accusation of the missionaries was greatly resented by the French residents. They accused the missionaries in turn of trying to prevent the recruiting of labor. The adjustment of these conflicting interests and mutual charges presented great difficulty to the joint court.

**NEW JERSEY.** One of the Middle Atlantic Division of the United States. It has an area of 8224 square miles. Its capital is Trenton.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 2,537,167, as compared with 1,883,669 in 1900 and 1,444,933 in 1890. The increase in the decade from 1900 to 1910 was 34.7 per cent. The State ranks eleventh in point of population, whereas in 1900 it ranked sixteenth. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** The clay products are the most important of the mineral resources of New Jersey. In 1908, the latest year for which statistics are available, these amounted in value to \$12,313,696. Of these products, brick and tile constituted a considerable portion. In the value of the brick, tile and pottery manufactured, the State ranks third, being surpassed only by Ohio and Pennsylvania. In the manufacture of Portland cement New Jersey takes fifth place. The production in 1909 was 4,046,322 barrels, valued at \$2,813,162, as compared with a production in 1908 of 3,208,446 barrels valued at \$2,416,009. The State is very important in the production of pig iron. This in 1908 amounted to 225,372 long tons, valued at \$3,370,000. A large quantity of zinc was produced in 1909. This amounted to 16,035 tons of spelter, as compared with 6926 tons in 1908. Among other mineral products are sand and gravel, lime and glass-sand.

**AGRICULTURE.** The acreage, production and value of principal crops are given for 1909 and 1910 in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	290,000	10,440,000	\$ 6,264,000
1909.....	290,000	9,483,000	6,733,000
Winter wheat, 1910.....	111,000	2,053,000	2,012,000
1909.....	110,000	1,969,000	2,146,000
Oats, 1910.....	60,000	2,226,000	979,000
1909.....	60,000	1,530,000	765,000
Rye, 1910.....	85,000	1,530,000	1,178,000
1909.....	79,000	1,888,000	1,018,000
Buckwheat, 1910.....	13,000	280,000	193,000
1909.....	13,000	283,000	209,000
Potatoes, 1910.....	95,000	9,975,000	6,484,000
1909.....	80,000	7,200,000	5,904,000
Hay, 1910.....	437,000	656,000a	11,939,000
1909.....	437,000	546,000	9,009,000

a Tons.

**EDUCATION.** The total enrollment in the public schools of the State in the year 1910 was 429,797. The average daily attendance was 373,544. The total number of teachers employed was 12,087, of whom 10,604 were females and 1483 were males. The average salary per year paid to all teachers was \$715.46. The number of buildings used for schools in the State was 2084 and the total value of the school property was \$36,438,047. The total amount expended for school purposes during the year was \$18,262,275. Of this amount there was expended for teachers' salaries, \$8,647,804; for new buildings and additions, \$4,810,270; for text-books, apparatus and supplies, \$745,707; for manual

training, \$309,959, and for transportation of pupils, \$145,736.

**FINANCE.** The report of the treasurer for the fiscal year ending November 30, 1910, showed a balance in the treasury on November 1, 1909, of \$3,680,882. The total receipts for the year were \$8,534,969 and the total disbursements were \$7,670,663, leaving a balance in the treasury on October 31, 1910, of \$4,545,188. The chief receipts were from the collateral inheritance tax, State tax on railroad corporations, tax from miscellaneous corporations and from banks and insurance companies. The chief disbursements were for education, for the support of State institutions, and for the support of the State government.

**CHARITIES AND CORRECTIONS.** The institutions under State control, with the amounts disbursed for their support in 1910, were as follows: Home for Feeble-Minded Children, \$7787; Home for Disabled Soldiers, \$86,995; Manual Training and Industrial School for Colored Youth, \$25,137; New Jersey School for the Deaf, \$46,767; New Jersey Reformatory, \$174,975; Sanatorium for Tuberculous Diseases, \$88,487; State Home for Boys, \$88,447; State Home for Girls, \$68,021; State Hospital at Trenton, \$333,625; State Hospital at Morris Plains, \$533,413; State Prison maintenance, \$124,995; Village for Epileptics, \$170,342. There was also disbursed for the support of the blind and feeble-minded, \$131,274.

#### POLITICS AND GOVERNMENT

**THE LEGISLATURE.** The State legislature sat in 1910 and the most important laws passed will be found noted in the paragraph *Legislation* below. The opening of the legislature was marked by an attempt of the Democratic minority to have a rule passed compelling committees to report any bill by request of fifteen or twenty members of the House. In 1908 the "New Idea" Republicans, aided by the Democrats, succeeded in having a rule adopted relieving the committee of further consideration of bills upon demand of fifteen members and in 1909 there was a similar rule enforceable by twenty members. In 1910 the Democrats had nineteen members in the House, and after failing to have the fifteen rule adopted, they endeavored to put through the twenty rule. The House, however, refused this, and adopted the rules of 1907, making committees amenable to the majority rule.

Among the recommendations made by Governor Fort in his annual message were the establishment of a public utilities commission, extension of the direct primary system, restrictive excise regulations, the formation of different departments for corporations, motor vehicles and collateral inheritance tax, the construction of a system of State highways, extension of the scheme of inland waterways, continuation of the commission to revalue railroad property and an appropriation toward the Palisade Park project. In advocating the extension of the direct primary system the governor declared that for the first time in its history the State would have the opportunity to send to the United States Senate the man for whom the people may declare their preference. The governor was not able to secure the passage of all these measures through the legislature. His attempt to secure legislation providing for the continuation of the commission to revalue railroad property was defeated by the action of

the House in passing a measure that the work shall be completed under the direction of the State Board of Assessors, one of the commissioners to act as expert in charge. On February 7 the governor transmitted to the legislature the proposed income tax amendment to the Constitution with the recommendation that it be approved. The legislature failed to vote on the amendment.

**CONVENTIONS AND ELECTIONS.** Next to the election of governor, the chief interest in the election of 1910 centred in the election of a United States Senator to succeed John Kean, whose term expired in 1911. There were several candidates for the nomination in both the Republican and Democratic parties. Among those who sought the Republican nomination were Senator Kean for re-election, David Baird former sheriff of Camden County, Franklin Murphy of Newark, formerly governor of the State, Representative Charles N. Fowler of Elizabeth, and E. C. Stokes, a former governor. The candidates on the Democratic side were former Senator James Smith, Jr., James E. Martine and Frank M. McDermit. By provisions of the act passed by the legislature of 1910, senatorial candidates may submit their claims to popular vote at direct primaries. Mr. Murphy suggested that Senator Kean, Mr. Baird, and other Republican candidates take advantage of these provisions. They refused, however, to do so. The nominations for Senator were made in accordance with the law by petition, each of which required the signatures of 1000 legal voters of the State. At the primaries held in September, Mr. Stokes received the Republican nomination, while the larger part of the Democratic votes were cast for Mr. Martine, his only opponent in the party primaries being Mr. McDermit.

The Democratic convention for the nomination of State officers was held on September 14. The most prominent candidates for the governorship were Woodrow Wilson, President of Princeton University; and Frank S. Katzenbach, Jr., former mayor of Trenton. Dr. Wilson's candidacy resulted from a demand on the part of the Democrats of the State for the strongest possible candidate, as the indications for Democratic success were sufficient to give them sanguine hope for electing their candidate. He had the support of the Democratic organizations of which former Senator James Smith, who was the chief Democratic power of the State, was the acknowledged leader. Mr. Wilson was nominated on the first ballot which stood: Wilson, 795; Katzenbach, 276. The platform adopted by the convention included a plank criticising the Payne-Aldrich tariff bill in severe terms. It favored the enactment of an employers' liability act which will satisfy the just demands of labor and secure safety and efficient sanitation in all manufacturing processes and employments.

The Republican State convention was held at Trenton on September 20. The only prominent candidate before the convention was Vivian M. Lewis of Paterson, N. J., State Commissioner of Banking and Insurance. The platform heartily approved the administration of President Taft. It commended the protective tariff and endorsed the action of the President and Congress in providing an expert and permanent tariff board to investigate tariff schedules. The policy of conservation announced by the President was approved and it was affirmed that the same safe-

guards should surround primary elections as had been shown to be effective in preventing repeating and frauds at general elections.

The State has never seen a more aggressive and interesting campaign than that which followed the nominating conventions. The nomination of Dr. Wilson at once attracted the attention of the country, and he gave his campaign a character which caused it to be one of the chief subjects of interest throughout the United States. He traveled about the State making addresses, which were received with great enthusiasm. The fear that these addresses would be too academic to impress the average voters proved to be unfounded. They discussed political conditions with the greatest clarity and with an evident practical knowledge of conditions. An interesting incident of the campaign resulted from the action of a well known Progressive Republican leader, George L. Record, in propounding to Dr. Wilson nineteen questions for answer. These questions were answered fully and without hesitation. He assailed the Republican administration and policies, but in terms which included no personal abuse or bitterness.

Mr. Lewis too made an aggressive campaign, speaking in all parts of the State. It was apparent, however, from the beginning of the campaign that the tendency was strongly toward the election of Dr. Wilson. This was the result, not only of his strong personality and high capabilities, but was due also to the Democratic trend felt throughout the country. Dr. Wilson was elected by a plurality of 49,056. He received 233,682 votes against 184,626 cast for Mr. Lewis. The Democrats elected a majority of the members of the State legislature, thus insuring the election of a Democrat to succeed Senator Kean. Following the election, the question of the action of the legislature in electing a United States Senator became the leading matter for political discussion. James E. Martine of Plainfield, as noted above, received a majority of the Democratic votes at the primary. James Smith, Jr., a former United States Senator and an aggressive candidate for the Senate refused to be bound by the action of the voters at the primary. On December 8 Dr. Wilson issued a statement favoring the candidacy of James E. Martine to succeed Senator Kean in the United States Senate. The governor-elect based his support of Mr. Martine on the ground that it was the will of the people as expressed in their vote that he should be elected. Former Senator James Smith, Jr., a candidate for the Senate declared that the governor's attitude was neither fair nor honorable and was an unwarrantable attempt to coerce the legislature. Mr. Wilson in his statement said "I offered, if elected, to be political spokesman and adviser to the people. I even asked the voters who did not care to make their choice of governor upon that understanding, not to vote for me . . . and I cannot escape the responsibility involved. . . . I know that the people of New Jersey do not desire Mr. James Smith, Jr., to be sent again to the Senate. If he should be he will not go as their representative. . . . At the recent primaries 48,000 Democratic voters, a majority of the whole number who voted at the primaries, declared their preference for Mr. Martine. For me that vote is conclusive."

**OTHER EVENTS.** In July the public utilities law in the State became effective. The three

members of the old State Railway Board became the new Public Utilities Commission with jurisdiction over every public service corporation in the State, including telegraph and telephone companies, pipe lines and water companies. In general, the powers of the Commission are similar to those exercised by the New York Public Service Commission, though much modified. The threatened action of the railroads passing through New Jersey to increase their rates, especially the rate for commutation to New York City, raised great opposition throughout the State and demand was made on Governor Fort to call a special session of the legislature to consider the question. The governor refused to do this on the ground that while the railroads may have acted hastily in adopting new schedules, such action was within their legal rights if it could be shown that the proposed increase was reasonable and just. This he said presented a judicial question which could be settled according to the facts. The Interstate Commerce Commission on June 23 requested the railroads in the State to postpone the proposed advance in commutation rates, and to this request the companies acceded. Later the new rates were put into effect. The question as to whether these rates shall be maintained was before the Interstate Commerce Commission at the end of the year.

**LEGISLATION.** Among the important measures passed by the legislative session of 1910 were the following: The act relating to private banks was amended. A bond of \$20,000, with sufficient sureties, is now required. Child labor laws were so amended that no minor under 16 years of age is allowed to work more than 55 hours a week or more than ten hours a day. No minor under 15 years of age is permitted to work between six at night and six in the morning, and after July 4, 1911, no minor under 16 years of age will be permitted to work during these hours. Sheriffs were authorized to appoint jail matrons, and a State reformatory for women over 17 years of age was established. A commission was appointed to investigate the subject of an employers' liability law, and a law for workmen's compensation. A commission was also appointed to report on the allied subject of old age pensions. The marriage law was revised so as to require a license from the town where the woman resides, if a resident, otherwise from the place of the man's residence, before the performance of the ceremony. A law was passed permitting any married woman who holds real estate in the State, and whose husband has been a fugitive from justice for three years or more, to petition the court for power to sell such real estate as if unmarried, and if such power is granted she may convey all her title thereto. The legislature passed a sweeping law directed toward the reduction of tuberculosis. It declares tuberculosis an infectious disease, requires physicians' reports, disinfection of premises, care of the diseased, and a distribution of circulars and information. The violation of the law is a misdemeanor. Three other measures were passed along the same line. The first appropriates \$10,000 for the study of the prevention and treatment of tuberculosis under the direction of the State Board of Health by publication, State exhibits, and special inspectors. The other acts authorized counties to establish tuberculosis hospitals subject to inspection by the State Board of Charities and

the State Board of Health, and required that the location of such hospitals must be approved by the State Board of Health only after due notice to the public and a hearing of remonstrants. October 12 was made a legal holiday, to be known as Columbus Day. An elaborate public utilities bill was passed. This provides that the board of railroad commissioners shall henceforth be called the Public Utilities Commission. Subject to their jurisdiction are railroads, street railroads, canals, subways, pipe lines, traction, gas, electric, water, express, sewer, telephone and telegraph companies, and other companies operating for general use within the State a franchise obtained from the State or municipality. The commission is to supervise all these utilities and to exercise its powers to secure obedience to the laws, to require safe and adequate service, to prescribe methods of book-keeping, with an eye to securing simplicity and uniformity, to approve leases, mergers, the issue of securities, and the grant of local franchises, and in all cases such approval is a prerequisite to the validity of the action taken. The commission is to enforce its orders by proper process. Appeal from the decisions of the board lies to the courts and appeals to the board lie from municipal ordinances and regulations. The act forbids free transportation and other favors to municipal officers, except when on duty and in uniform. A law was passed requiring railroads to furnish free transportation within the State to specified officials, including members of the legislature or congressmen. Railroads are obliged to furnish these individuals with an unlimited pass for all purposes. Measures were enacted providing for a complete physical valuation of all the railroads of the State and the valuation of their franchises. Measures were passed providing for regulations upon the sale of fireworks and explosives, amounting in some cases to a complete prohibition. The legislature passed over twenty bills relating to the government of municipalities. Several of these concerned the waterways. Among them is one creating a department of wharves, docks, and ferries in cities of the first class. Towns and counties may open inlets and may keep open public highways within their limits. A law was passed authorizing the condemnation of property for public markets. Towns are permitted to create a town plan and art commission of seven members, to whom all questions of public improvement shall be submitted and whose decisions shall be final unless changed by a two-thirds vote of the town council. This commission may also improve the street plan, assessing the benefits as betterments, regardless of remonstrances of property owners when the public interest requires a change and it is approved by a majority of the council. Important legislation was enacted relating to white slaves, as a result of the agitation carried on during 1909-10.

**STATE OFFICERS.** Governor, Woodrow Wilson; Secretary of State, S. D. Dickinson; Treasurer, Daniel S. Voorhees; Auditor, William E. Drake; Comptroller, Henry J. West; Attorney-General, Edmund Wilson; Adjutant-General, Wilbur F. Sadler, Jr.; Superintendent of Education, C. J. Baxter; Commissioner of Insurance, Vivian M. Lewis—all Republicans except Woodrow Wilson.

**SUPREME COURT.** Chief Justice, W. S. Gummere, Rep.; Justices, Charles W. Parker, Rep.;

I. W. Trenchard, Rep., Alfred Reed, Dem., C. G. Garrison, Dem., James J. Bergen, Dem., Willard F. Voorhees, Rep., James F. Minturn, Dem., F. J. Swayze, Rep.; Clerk, William Riker, Jr., Rep.

**STATE LEGISLATURE.** 1911 Senate, Republicans 12; Democrats 9; Republican majority 3. Assembly, Republicans 18; Democrats 42; Democratic majority 24. Joint ballot, Republicans 30; Democrats 51; Democratic majority 21.

**NEW MEXICO.** A Territory in the southwestern part of the United States. It has an area of 122,634 square miles. Its capital is Santa Fé.

**POPULATION.** The population of the Territory in 1910, according to the Thirteenth Census, was 327,301 as compared with 195,310 in 1900 and 160,282 in 1890. The increase in the decade from 1900 to 1910 was 67.5 per cent. The Territory ranks forty-fourth in point of population, the same relative rank which it held in 1900. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** The most valuable of the mineral products in the State is coal, of which there were produced, in 1909, 2,805,747 short tons, having a spot value of \$3,619,347, as compared with 2,467,937 short tons valued at \$3,368,753 in 1908. The production of copper in 1909 was 5,031,136 pounds as compared with 4,991,351 pounds in 1908. Reports of the United States Geological Survey indicate an increased production in 1910. The amount of gold produced in 1910 was valued at \$397,974 as compared with a value for the production of 1909 of \$252,800. The output of silver was estimated at 683,111 fine ounces as compared with 324,200 fine ounces in 1909. The other mineral products of the State are comparatively unimportant. They include clay products, precious stones, mineral water, and gravel.

**AGRICULTURE.** The acreage, production, and value of leading crops are given for 1909 and 1910 in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	70,000	1,610,000	1,449,000
1909.....	68,000	2,128,000	1,915,000
Spring wheat 1910.....	43,000	860,000	860,000
1909.....	41,000	1,004,000	1,175,000
Oats, 1910.....	30,000	822,000	510,000
1909.....	24,000	960,000	334,000
Barley, 1910.....	1,000	25,000	20,000
1909.....	1,000	40,000	40,000
Potatoes, 1910.....	2,000	94,000	98,000
1909.....	1,000	85,000	88,000
Hay, 1910.....	194,000	407,000a	4,680,000
1909.....	185,000	481,000	5,339,000

a Tons.

**POLITICS AND GOVERNMENT.** The passage of a bill providing for the statehood of New Mexico was the most important political event in the history of the Territory in 1910. This made it necessary to hold a convention to construct a constitution for the new State. Elections were held on September 6 for the choice of delegates. These resulted in the election of 71 Republican and 29 Democratic delegates to the Convention. The majority of the delegates elected were opposed to the initiative and referendum. The Convention met at Santa Fé October 4 and continued its deliberations until November 21, and formulated a constitution that was submitted to a popular vote on Janu-

ary 21, 1911. The constitution, as formulated, followed the older models, especially the Constitution of the United States, as distinguished from the newer models, the Oregon and Oklahoma constitutions. However, a modified referendum was included and an elective corporation commission was provided, while the initiative, recall, direct primaries and Prohibition were not included. Because of the fact that the constitution adopted the language of the Federal Organic Act and of treaties, in defining the eastern boundary as the 103d degree of longitude, the Texas representatives in Congress protested, as a survey of the 103d meridian had proved erroneous, throwing the line three miles west of the true meridian. This erroneous survey had been tacitly permitted to stand although the error had been frequently pointed out. But President Taft and Texas took the view that property rights had been established under this erroneous survey and that it therefore should be adopted by New Mexico despite the fact that by treaty with Texas in 1850 the boundary had been established on the true 103d meridian. On December 21, President Taft sent a message to Congress embodying this view and recommending the passage of a joint resolution authorizing the President and the State of Texas to mark the boundary line between that State and New Mexico. This resolution was adopted.

**STATE OFFICERS.** Governor, William J. Mills, Rep.; Secretary of Territory, Nathan Jaffa, Rep.; Treasurer, Miguel A. Otero, Rep.; Auditor, W. G. Sargent, Rep.; Adjutant-General, A. S. Brookes, Rep.; Attorney-General, Frank W. Clancy, Rep.; Superintendent of Education, J. E. Clark, Rep.; Commissioner of Insurance, Jacobo Chavez, Rep.; Commissioner of Agriculture, Robert P. Ervien.

**SUPREME COURT.** Chief Justice, W. H. Pope; Associate Justices, John R. McFie, Ira A. Abbott, E. R. Wright, C. J. Roberts, M. C. Mechem, and F. W. Parker; Clerk, José D. Sena—all Republicans.

**LEGISLATURE.** By special provision of Congress there was no election for a State legislature in 1910; the legislature of 1909 was composed of nine Republicans and three Democrats in the Senate, and twenty Republicans and four Democrats in the House.

**NEW NATIONALISM.** This title was applied to certain propositions contained in a speech made by Mr. Roosevelt on August 31, 1910, at the dedication of the John Brown Park, Osawatomie, Kansas. Mr. Roosevelt said: "The essence of any struggle for healthy liberty has always been and must always be to take from some one man or class of men, the right to enjoy power, wealth, position, or immunity which has not been earned by service to his or their fellows." The thing chiefly to be settled, he said, was equality of opportunity, which "means that our governments, National and State, must be freed from the sinister influence or control of special interests. Exactly as special interests of cotton and slavery threatened our political integrity before the Civil War, so now the great special business interests too often control and corrupt men and methods of government for their own profit. We must drive the special interests out of politics. . . . The true conservative is he who insists that property shall be the servant and not the master of the commonwealth."

To bring this condition to pass Mr. Roosevelt put forward a platform, which contained the following planks:

- (1) Complete and effective publicity of corporate affairs.
- (2) Prohibition of the use of corporate funds for political purposes.
- (3) Government supervision of the capitalization of all corporations doing an interstate business.
- (4) Franchises given only for a limited time and with compensation to the public.
- (5) The same supervision over combinations that control the necessities of life, such as meat, oil, and coal, as over public service corporations.
- (6) Directors of corporations to be held personally responsible if corporations break the law.
- (7) Combinations in industry are necessary, but they should be controlled in the interest of the public welfare.
- (8) An expert tariff commission.
- (9) A graduated income tax on big fortunes, with a graduated inheritance tax.
- (10) A scientific revision of our financial system so as to prevent those recurring panics from which other countries are free.
- (11) A sufficient army and navy to insure international respect.
- (12) Conservation of natural resources.
- (13) Extension of the work of the Department of Agriculture and agricultural colleges to cover not merely the production of crops but all the interests of agricultural life.
- (14) Regulation of the terms and conditions of labor as well as of the use of wealth in the public interests.
- (15) Suppression of mob violence.
- (16) National and State efficiency.
- (17) The direct primary, associated with a corrupt practices act, with the recall.

In the elaboration of these propositions, Mr. Roosevelt made the following comments:

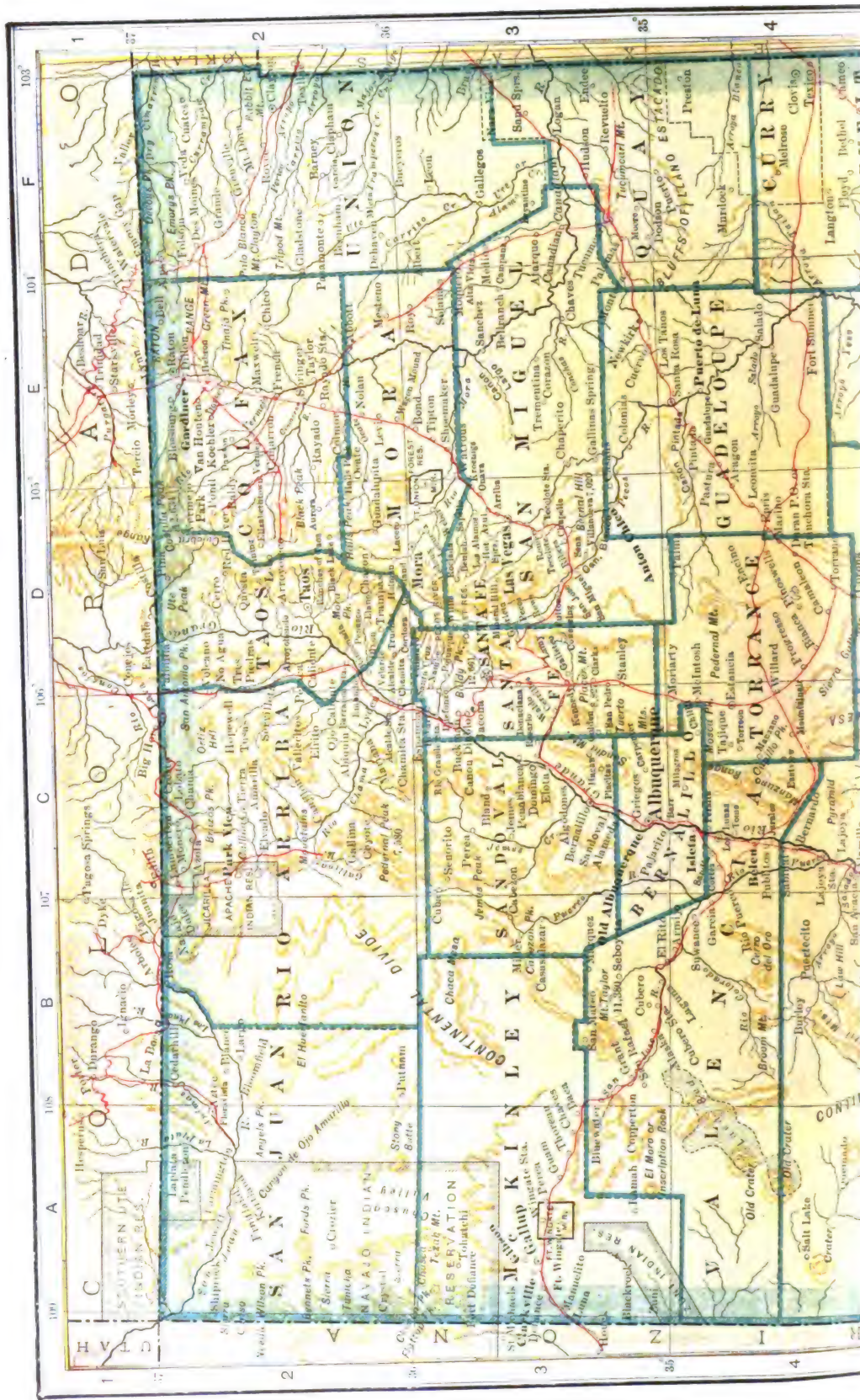
**Government supervision of the capitalization of all corporations:** "I do not wish to see the nation forced into the ownership of railroads if it were possible to be avoided, and the only alternative is thoroughgoing and effective regulation, which shall be based on the full knowledge of all the facts, including the physical valuation of the property. This physical valuation is not needed or at least is very rarely needed for fixing rates, but it is needed as the basis of honest capitalization."

**Combinations:** "For that purpose [of regulating corporations] the Federal Bureau of Corporations is an agency of the first importance. Its power, and therefore its efficiency, as well as that of the Interstate Commerce Commission, should be largely increased. . . . The Hepburn act and the amendment to that act in the shape in which it finally passed Congress at the last session represent a long step in advance and we must go yet further."

**An expert tariff commission:** "Such a commission can find out the real difference between cost of production, which is mainly the difference of labor cost here and abroad. As fast as its recommendations are made I believe in revising one schedule at a time. A general revision of the tariff almost inevitably leads to log-rolling and the subordination of the general public interest to local and special interests."

**Graduated income tax and inheritance tax:** "We grudge no man a fortune which represents







1911

his own power and sagacity, when exercised with entire regard to the welfare of his fellows. But the fortune must be honorably obtained and well used. It is not even enough that it should have been gained without doing damage to the community. . . . This I know implies a policy of a far more active governmental interference with social and economic conditions in this country than we have yet had, but I think we have got to face the fact that such an increase in government control is now necessary."

Regulation of the terms and conditions of labor as well as the use of wealth in the public interests: "No man can be a good citizen unless he has a wage more than sufficient to cover the bare cost of living, and hours of labor short enough so that after his day's work is done he will have time and energy to bear his share in the management of the community . . . . We need comprehensive workmen's compensation acts, both State and national laws to regulate child labor and the work of women, and especially we need in our common schools, not merely education and book learning, but also practical training for daily life and work."

Suppression of mob violence: "In the interest of the workingman himself, we need to set our faces like flint against mob violence, just as against corporate greed."

State and national efficiency: "The State must be made efficient for the work which concerns only the people of the State and the nation for that which concerns all the people. There must be no neutral ground to serve as a refuge for lawbreakers, and especially for lawbreakers of great wealth who can hire the vulpine legal cunning which will teach them how to avoid both jurisdictions."

"The new nationalism puts the national need before sectional or personal advantage. It is impatient of the utter confusion that results from local legislation attempting to treat national issues as local issues. It is still more impatient of the impotence which springs from the overdivision of government powers, the impotence which makes it possible for local selfishness or for legal cunning, hired by wealthy special interests to bring national activities to a deadlock. This new nationalism regards the executive power as the steward of the public welfare. It demands of the judiciary that it shall be interested primarily in human welfare rather than in property."

Direct primary: "We must have—I believe we have already—a genuine and permanent moral awakening, without which no wisdom of legislation or administration really means anything; and on the other hand, we must try to secure the social and economic legislation without which any improvement due to purely moral agitation is necessarily evanescent." See UNITED STATES, *Campaign and Election of 1910*, and ROOSEVELT, THEODORE.

**NEWNES, Sir GEORGE.** An English editor and publisher, died June 9, 1910. He was born in Derbyshire in 1851 and was educated at private and public schools. He began his business life as a merchant's clerk in Manchester. In 1875 he married a clergyman's daughter, who, it is said, founded her husband's fortune by suggesting to him the value of a magazine containing "titbits of notes and fun." With little or no capital he started a penny weekly, *Titbits*, in 1881, writing for a time most of its contents himself. The journal was a success from the start and

he soon accumulated a large fortune. In 1885 he was elected to Parliament from the Newmarket Division of Cambridgeshire as a Liberal and represented that division for ten years. In the meantime he continued to found and buy daily, weekly and monthly papers and magazines. In 1889 he founded the *Review of Reviews* and in 1891 the *Strand* magazine. To the latter Conan Doyle contributed the Sherlock Holmes stories. At this time he had as associates Alfred Harmsworth (Lord Northcliffe) and C. A. Pearson, who later became his rivals in the conduct of newspapers and magazines. Newnes founded or bought the *Westminster Gazette*, the *Wide World*, the *Grand Magazine*, the *Sunday Strand*, the *Captain*, *Fry's Magazine*, *Country Life*, the *Garden*, the *Ladies' Field*, *Woman's Life*, and the *Scholar's Own*. Prompted by the fact that W. W. Astor bought the *Pall Mall Gazette*, the only Liberal evening paper, and over night turned it into a Tory organ, Newnes bought the *Westminster Gazette*, took over the whole Liberal staff of the *Pall Mall* and gave the Liberals an evening organ with the same dispatch which marked their loss of one. He was notable for the ingenious schemes which he devised for increasing the circulation of his periodicals. Perhaps the most notable was his attempt to increase the circulation of the *Strand* by announcing that clues to the hiding-place of £500 would be found in a *Strand* serial story. He then made further hidings, ten of £100 each and when clues in the story seemed to indicate that some of the gold was hidden beneath Trafalgar Square, the police had difficulty in preventing the Square from being dug up. He was created Baronet in 1895. He was active in promoting international matches in chess and donated the international chess trophy which bears his name.

**NEW SOUTH WALES.** A state of the Australian Commonwealth. Capital, Sydney. Area, 310,372 square miles. Estimated population, June 30, 1910, 1,662,367. For details, see AUSTRALIA. The executive authority is vested in a governor appointed by the British Crown and acting through a responsible ministry. The legislative power devolves upon a parliament of two houses, the appointive Legislative Council and the elective Legislative Assembly. Governor in 1910 (appointed May 28, 1909), Right Hon. John Napier, Baron Chelmsford; Premier (in the ministry constituted October 21, 1910), J. S. T. McGowan.

**HISTORY.** Great losses of cattle and serious damage to the town of Tamworth were caused by floods on January 16, and several townships in the northern part of the state were devastated. The coal strike, which had been going on for eighteen weeks, came to an end toward the end of February. It had little public sympathy and its prospects were bad from the beginning. The government had continued its policy of encouraging immigration and the Premier announced in the spring that there had been a gain of 10,000 immigrants from Great Britain in 1910, all of them of the settler class. In his manifesto to the electors he urged their acceptance of the Federal financial agreement, saying that it would be fair both to the states and the Commonwealth and that rejection would mean financial chaos, increased taxation and an encroachment on state rights. The closer settlement policy at the close of the session of Parliament in the summer had resulted in the sub-

division of estates amounting to 181,796 acres. Among the measures passed by Parliament were bills for advancing money to groups of settlers desiring to acquire land, providing for reforms in the land laws tending to promote closer settlement, and establishing a superannuation fund for employes on railways and tramways, based on the contributory principle, but with a government subsidy. By another enactment authority was given to the industrial court to fix a minimum wage for clerical workers. The Premier announced the government's intention to open up great areas of Crown lands in the west and northwest for settlement. The proposals of the government included railway improvements, trade schools, a woman's college, a proposal for a referendum and a plan for the reform of the Council and the reduction of the number of members in the Legislative Assembly. Parliament closed in September, fixing the date, October 14 for the elections. The position of parties as a result of the elections was as follows: Labor Party, 46; supporters of Mr. Wade, 38; Independents, 6. At the end of October a new Ministry was formed under Mr. McGowan as Premier. At that time the returns of the local option referendum were made known. No single constituency went for "no license" and only 15 constituencies voted for a reduction of licenses, while 75 constituencies voted for the continuance of the present system. The new Premier in a public address soon after his appointment declared his intention of providing cheap lands for immigrants and the need of a thoroughly scientific system for regulating immigration and promoting it at points where it was needed. The government programme as announced by the Premier comprised state insurance, amendment of the Industrial Disputes Act, opening of lands for settlement, electoral reform and reform of legal procedure.

**NEW THEATRE.** See **DRAMA.**

**NEW YORK.** One of the North Atlantic Division of the United States. Its area is 49,204 square miles. Its capital is Albany.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 9,113,614 as compared with 7,768,894 in 1900 and 6,003,174 in 1890. The gain in the decade from 1900 to 1910 was 25.4 per cent. The State ranks first in point of population as it did in 1900. The population of the larger cities and towns will be found in the tables in the article **UNITED STATES CENSUS.**

**MINERAL PRODUCTION.** The mineral industry of the State has grown steadily since 1904. The chief products are iron, clay products, stone and salt. The iron mined in 1908, the latest year for which statistics are available, amounted to 697,473 tons, which was a decrease from the production of 1907, caused largely by business depression. The clay products of the State in 1909 were valued at \$8,929,224. There were produced in 1909 2,087,884 barrels of Portland cement, valued at \$1,838,462 as compared with 1,988,874 barrels valued at \$1,813,623 in 1908. In the production of salt the State ranks second, being surpassed only by Michigan. The production of petroleum is of considerable importance. In 1909 1,134,897 barrels were produced as compared with 1,160,128 barrels in 1908. The value of the product in 1909 was \$1,878,217 as compared with a value of the product for 1908 of \$2,071,533. Other products of importance are natural gas, pyrite, talc and crystalline graphite.

**AGRICULTURE.** The acreage, production, and value of the leading crops are given for 1909 and 1910 in the following table:

	Acreage.	Prod. bu.	Value.
Corn, 1910.....	680,000	26,044,000	\$16,408,000
1909.....	670,000	24,120,000	17,894,000
Winter wheat, '10	444,000	10,523,000	10,102,000
'09	420,000	8,820,000	9,790,000
Oats, 1910.....	1,338,000	46,161,000	19,348,000
1909.....	1,325,000	37,365,000	18,309,000
Barley, 1910....	78,000	2,207,000	1,545,000
1909.....	77,000	1,910,000	1,318,000
Rye, 1910.....	170,000	3,111,000	2,302,000
1909.....	160,000	2,720,000	2,176,000
Buckwheat, 1910	313,000	7,199,000	4,679,000
1909	313,000	7,512,000	5,183,000
Potatoes, 1910..	438,000	44,676,000	21,414,000
1909..	438,000	52,560,000	26,250,000
Hay, 1910.....	4,811,000	6,351,000a	87,009,000
1909.....	4,764,000	5,002,000	71,028,000
Tobacco, 1910...	5,900	7,375,000b	626,875
1909...	6,000	7,050,000	564,000

a Tons. b Pounds.

**EDUCATION.** The total number of students in attendance in the schools of the State in 1910 was 1,886,160 and the number of teachers employed was 52,075. The net value of public school property increased during the year \$15,475,110. The total expenditures for the year for educational purposes was \$74,423,825. Superintendent Draper in his annual report devotes considerable space to the discussion of industrial training in both elementary and secondary schools. In these schools discrimination is made between industrial work for boys and that for girls, and each is given instruction along the lines which have especial bearing upon the vocations natural to their sex. In agricultural communities the course of study includes elementary agriculture, mechanic arts and home-making. He points out the necessity for better provisions for playgrounds.

**CARE OF THE INSANE.** The Psychiatric Institute of the State Hospitals for the Insane is on Wards Island, New York City, in connection with the Manhattan State Hospital, and is under the directorship of Prof. August Hoch, M. D. The number of inmates in the various hospitals at the close of the fiscal year, September 30, 1910, was as follows: Utica, 1432; Willard, 2378; Hudson River, 3017; Middletown, 1888; Buffalo, 2014; Binghamton, 2361; St. Lawrence, 1967; Rochester, 1430; Gowanda, 1079; Mohansic, 12; Manhattan, 4585; Kings Park, 3291; Long Island, 753; Central Islip, 4328; Matteawan, 779; and Dannemora, 382. Total, 31,606. There were 1051 patients in the 22 licensed private houses, making a grand total of 32,657 patients. The total expenditure for maintenance was as follows: Officers' salaries, \$298,294; employes' wages, \$1,968,639; provisions and stores, \$2,050,603; farms and grounds, \$121,489; ordinary repairs, \$123,232; clothing, \$208,830; furniture and bedding, \$136,167; books and stationery, \$32,764; fuel and light, \$492,744; medical supplies, \$36,950; miscellaneous expenses, \$163,440; and transportation of patients, \$26,785; making a total of \$5,659,942. The receipts from partly or fully reimbursing patients, stewards' sales, and miscellaneous sources were \$408,797. The commissioners in lunacy are Albert Warren Ferris, M. D., Sheldon T. Viele, and William Cary Sanger. See **CHARITY.**

#### POLITICS AND GOVERNMENT

**THE LEGISLATURE.** Several important measures were passed in 1910 and these will be found

noted in the section *Legislation* below. The popular interest in the session, however, centred in the attempt of Governor Hughes to secure the passage of satisfactory direct primary bills. On February 11 a bill embodying his ideas was introduced into the legislature. A general discussion of this bill, which was known as the Greene-Hinman bill, will be found discussed in the article *NOMINATION REFORM*. The legislature refused to pass this bill in the form desired by Governor Hughes, but a modified measure known as the Cobb bill went through both Houses of the legislature. This bill was vetoed by the governor.

On January 5 in a special message to the legislature Governor Hughes stated that he was in favor of an income tax amendment to the constitution in theory, but asked that the legislature reject the amendment as passed by Congress on the ground that it conferred power to tax the income derived from State and municipal bonds. This the legislature did.

The legislature having failed to pass any primary bill which he could approve, Governor Hughes called a special session, which convened at Albany on June 2. There was a marked disposition to question the governor's right to construe the legislative situation regarding direct primaries as an emergency justifying the calling of a special session. The governor maintained that since the Senate had passed at the regular session the so-called Cobb bill, while the Assembly had refused to pass it, there was at least a possibility of the two Houses agreeing on some measure for primary reform if their attention could be concentrated on that particular subject without the distraction that made adequate discussion impossible during the closing hours of the regular session. In his message he requested action on three measures, which he regarded as of cardinal importance, a direct nominations bill, a broadening of the scope of the graft inquiry provided for at the regular session, and the institution of a graded inheritance tax. The governor favored the so-called Cobb direct primaries bill, so amended as to exempt the city of New York from its provisions as regards all offices except those of Representative in Congress, State Senators, and Assemblymen. The bill was defeated by a combination of Republican regulars with Tammany Democrats. It failed of passage by only one vote. The governor was able to secure the passage of the measure for the revision of the progressive inheritance tax law, and a bill was passed in accordance with his recommendations, which will increase the State's annual revenue by about \$4,000,000.

**TRIAL OF SENATOR ALLDS.** The death of Senator John Raines in 1909 made it necessary to choose a new leader of the Republican majority in the Senate. This leader, according to custom, is made president pro tempore of the body. In January the Republican caucus selected Senator Jotham P. Allds from Chenango county in the middle of the State. A small group of Republican Senators refused to act with the caucus on the ground of personal objection to Mr. Allds. The caucus selection was, however, duly chosen and installed. Shortly afterwards, a highly sensational statement appeared in the *New York Evening Post* charging Senator Allds with having received bribes, the statement being based upon accusations made by another Senator, Mr. Conger. The latter was

connected with bridge companies which built and repaired bridges under the control of the county and local authorities. Changes in laws affecting the matter of procedure by the highway authorities in their respective localities would have a bearing upon the business of the bridge companies and it was to their interest to prevent the passage of certain amendments to the highway laws. The bridge companies were said to have collected and disbursed certain money to ward off undesired legislation and Senator Conger asserted that Senator Allds had accepted certain amounts of this money. Senator Allds denied this accusation and demanded a trial and resolutions were at once passed providing for a hearing by the full Senate sitting as a judicial body.

Senator Conger testified that in his presence Hiram G. Moe, representing the interests of several bridge companies, including Conger's, had paid to Senator Allds, then the leader of the Republican majority in the Assembly, \$1000 to procure the killing of a bill which was distasteful to the companies. It appeared further from his testimony that the total amount furnished by the companies was \$6000, of which \$1000 was given to Senator Allds, and \$4000 to Assemblyman Jean L. Burnett, now dead. A second envelope containing \$1000, he testified, was given to S. Frederick Nixon, Speaker of the Assembly from 1899 to the time of his death, 1905. Senator Conger testified that the companies had raised funds to influence legislation not only in the year in question, but in 1902, 1903, and 1905. The same bill, which restricted the freedom of township officers in dealing with bridge companies without specific authority from the people, had been brought forward at every session and had been used, he alleged, to extort money from the companies. He declared that in 1905 the legislators raised their demand to \$10,000, which the companies refused to pay. As a punishment to them the bill was made a law. Senator Allds, on taking the stand in his own defense, denied that he had received \$1000, or had ever taken a bribe designed to affect legislation. He declared that he had never seen Moe and that the incidents testified to by Senator Conger had never taken place.

After the hearing of testimony, which occupied seven weeks, the Senate on March 29 voted upon the question whether the charges of Senator Conger against Senator Allds had been sustained. Some hours before the vote was taken Senator Allds resigned, by advice of his counsel. By a vote of 40 to 9 the Senate declared that he was guilty. Four Republicans and five Democrats voted in his favor.

**LEGISLATIVE INQUIRY.** These revelations led to the introduction in the legislature of bills for a broader investigation of legislative conditions. These bills were passed and a committee of the legislature was appointed to investigate any instances of legislative corruption within their knowledge. Governor Hughes's recommendation that the powers of the legislative graft committee be enlarged were disregarded by the legislature. The committee was made up from the membership of the Senate and the Assembly, and the Hon. M. Linn Bruce, a former lieutenant-governor was chosen as counsel. The committee was practically confined, by the action of the legislature, to those evidences of corruption disclosed by the Senate investigation during the trial of Senator Allds and the investigation

into insurance matters conducted by Superintendent Hotchkiss. During the progress of the inquiry a charge was made that Frank J. Gardner, a Republican member of the Senate from Brooklyn, had attempted to bribe certain members of the legislature to vote against race track bills passed in 1908. Gardner was indicted and was arrested at Scranton, Pa., October 13. The testimony upon which his arrest was based was that of Congressman Otto G. Foelker, who in 1908 was State Senator. Foelker cast the deciding vote in favor of the passage of the bill, arising from his sick bed to do so. He charged that Gardner had sent for him and attempted to buy his vote, remarking that he would pay him \$2000 more than some other senators would receive. Another witness testified that Gardner had admitted to him that the opponents of the bills had used a corruption fund of \$500,000, which was placed in the hands of a man who now held prominent office, and that this man profited by failing to keep the agreements made with certain legislators. Gardner, on the witness stand, refused to testify and was held in contempt of court.

In October Henry F. Zimmelin, formerly vice-president and representative at Albany of the Lyons Beet Sugar Refining Company testified before the committee that he had paid \$3000 a year for the last three years to the late John Raines, who was at that time the leader of the Republican majority in the State Senate. He testified also that \$3000 had been paid to Jean L. Burnett, a Representative who has since died, and that small sums were paid to other legislative officials. The company was interested in a law giving a bounty for beet sugar and wished to prevent a repeal of the statute. It was said that in 11 years the State paid \$545,000 in bounties for the manufacture of beet sugar, but in 1908 payment ceased as a result of the opposition of Governor Hughes, and that soon after this company went into bankruptcy. There was also testimony showing the collection by assessment of sums of money by the Street Railway Association for use at Albany and in political campaigns. It was alleged that one assessment of \$8000 paid by the Metropolitan Street Railway Company had been disguised as the payment of damages to an imaginary person for injuries received.

**INSURANCE INVESTIGATION.** An investigation into the conduct of certain fire insurance companies in the State was carried on in March by Superintendent Hotchkiss, the head of the New York Insurance Department. In the course of this investigation it was alleged that certain fire insurance companies had paid large sums of money apparently for the purpose of influencing legislation. E. R. Kennedy, a fire insurance broker, and a member of the legislative committee of the New York Board of Fire Underwriters, testified that in 1901 as a representative of the companies, he had expended \$13,311 at Albany, in connection with the passage and enactment of a bill designed to exempt the re-insurance reserves of fire companies from taxation. He testified also that about \$5000 was paid to influential politicians and that the same amount was given to the Republican State Committee. It was said that during the six years ended 1906, the insurance companies representing the New York Board of Fire Underwriters had paid something more than \$100,000 in "legal expenses" at Albany in connection with legisla-

tion pending there, the chief agent in these transactions being William H. Buckley, a politician who had been a subordinate officer in the insurance department. He admitted that in one year he had received \$27,000 from the companies for legal services, although he did not appear in any proceeding as an attorney of record. It was shown also that he borrowed large sums from officials of fire companies.

On April 11, Governor Hughes transmitted to the legislature a preliminary report from Superintendent Hotchkiss relating to his inquiry. The governor declared that Mr. Hotchkiss had come upon certain suggestive facts which required investigation. He stated further that he considered it a promising opportunity to investigate all alleged corruption which had been carried on in recent years in the State legislature. In accordance with his request the legislature adopted a resolution providing for a comprehensive investigation by a joint committee of three Senators and five Representatives, to report on March 1, 1911. See **INSURANCE**.

**CAMPAIGN AND ELECTIONS OF 1910.** The chief interest in the Republican party in the State prior to the holding of the convention centred about the control of the convention. This was largely brought about by the entrance of Mr. Roosevelt into active participation in the politics of the State. He had declared that he had not meant to be drawn into the campaign, but in June he had yielded to the urgent request of Governor Hughes, and had expressed himself in favor of the primary election and other reforms urged by the governor. The revelations of corruption on the part of some of the most important politicians in control of the machine of the State made it obvious that new conditions must be met. The leaders of the organization were determined, however, to control the convention and went so far as to make it appear that they had in this the support of President Taft. A meeting of the State Committee was called together and Vice-President Sherman was elected as temporary chairman of the convention, although it was well known that Mr. Roosevelt was a candidate for this office. The leaders of the organization made it appear, however, indirectly, that the selection of Mr. Sherman had the approval of President Taft. Mr. Roosevelt announced that he would fight for the nomination as temporary chairman in the New York Convention.

President Taft denied in a letter to Mr. Griscom, chairman of the State Committee, that he had any hand in the failure to nominate Mr. Roosevelt for temporary chairman at the meeting of the committee. In the course of this letter he said: "The suggestion that I have ever expressed a wish to defeat Mr. Roosevelt for temporary chairmanship of the convention, or have ever taken the slightest step to do so, is wholly untrue. I never heard Mr. Sherman's name suggested as temporary chairman of the State convention until I saw in the papers of August 16 that he had been selected at a meeting of the committee. When you called at my house on August 13, you told me that Mr. Roosevelt intended to go to the convention as a delegate, and you suggested, incidentally, his being temporary chairman, a suggestion in which I acquiesced. It did not occur to me that any one would oppose it. This was the first time that the subject of the temporary chairmanship was mentioned to me by any one." He added

that he had sent a telegram to Mr. Sherman stating that in his opinion the situation in New York would be saved by a full conference with Mr. Roosevelt and reasonable concessions as to platform and candidates. He stated that on August 15 he was told by Mr. Sherman that it was proposed to oppose Mr. Roosevelt with Senator Root's name, and no other name was mentioned. The President declared that he protested against the contest and again urged a conference with Mr. Roosevelt. He ended his letter by expressing his opinion that the solution of the direct primary issue could be found in provisions similar to those of the Cobb bill as amended.

Mr. Roosevelt expressed himself as greatly pleased with the letter of the President, and declared that although he at first had not intended to be a delegate to the convention, the attitude of the Old Guard toward him decided him to go there and make a fight against them. William Barnes, Jr., of Albany, the most prominent member of the State machine, issued a statement in which he expressed satisfaction that Mr. Roosevelt had come out in the open. Mr. Barnes declared that upon the question of direct primaries, Mr. Roosevelt would be opposed by all the power of those who were against the passage of such laws. To this Mr. Roosevelt replied that the fight would be to the end. He asserted that he was going to the convention because he felt that public interests, the interests of the people of the State of New York, demanded that the Republican party be given a chance squarely and uncompromisingly for clean, decent, honest politics. Mr. Barnes replied with a further attack upon the proposed direct primary legislation and defended the action of the committee in choosing Mr. Sherman as temporary chairman. In reply to a statement issued by State Chairman Woodruff that the direct primary was the chief issue in the mind of Mr. Roosevelt, the latter claimed that this was not the main issue. He said: "The main issue is that we stand against bosses, big and little, and in favor of genuine popular rule, not only at the election, but within the party organizations, and above all, that our rule is ruthless against every species of corruption, big and little, and against the alliance of corrupt business and corrupt politics, as to which it has been found that too often in the past the boss system has offered a peculiarly efficient and objectionable means of communication. We are against the domination of the party and the public by special interests, whether these special interests are political, business, or a combination of the two."

Before the delegates of the Republican convention assembled, it was well known that the majority of them would vote for Mr. Roosevelt as temporary chairman, and that Vice-President Sherman would be defeated. The leaders of the Old Guard predicted that the party would be beaten at the polls and asserted that Mr. Roosevelt had obtained a majority only by the aid of Federal officeholders. Mr. Barnes published a statement in which he declared that the elevation of Mr. Roosevelt was sought as the means of the humiliation of the President and that Mr. Roosevelt was the champion of doctrines which were a menace to public order. A meeting of the State Committee was held at which a letter from Mr. Sherman was read asking for investigation of the charge that the committee's vote in his favor had been obtained by deceit

and misrepresentation. The committee voted by 22 to 15 that there had been no deceit. On the first day of the convention the chairman of the State Committee, Mr. Woodruff, announced the selection of Mr. Sherman. Immediately after, a delegate nominated Mr. Roosevelt. After several nominating speeches had been made, a vote was taken and Mr. Roosevelt had 561 votes to 445 cast for Mr. Sherman. Mr. Roosevelt in his address praised the record of recent legislation at Washington and the record at Albany while Mr. Hughes had been governor. He declared that the first duty of the party was to war against dishonesty, against corruption in politics, against corruption in business and above all against degrading alliances of crooked business and crooked politicians. He spoke warmly also in favor of direct nominations. The convention was, from its beginning, controlled by Mr. Roosevelt and his supporters. On the second day Senator Root was made permanent chairman and a platform was reported. The only plank on which there was a contest was that on direct primaries. The majority and the minority reports were brought in on this subject. On the minority report Speaker Wadsworth, representing the Old Guard, made an address in which he declared that the minority report favored primaries only for the election of delegates to conventions and of members of party committees. Mr. Barnes spoke briefly, predicting that the plan proposed in the platform would lead to the adoption of the initiative and referendum and the recall. The majority report was vigorously defended by Mr. Roosevelt. "We trust the people," he said, "you do not." He said that sooner or later the party would be compelled to accept direct nominations and urged that conditions were at the present time ripe for it. The minority report was rejected by a vote of 610 to 403. On the evening of the same day the ticket for State officers was nominated. Mr. Roosevelt nominated for governor Henry L. Stimson. Congressman W. S. Bennet was also put in nomination. The vote resulted in 684 for Stimson and 242 for Bennet. The platform adopted began with the declaration of "relentless warfare upon official and legislative wrongdoing in this State." It promised that legislative inquiry into corruption should be a thorough one and that wrong-doers who have masqueraded in the name of Republicans should be punished if they were convicted. The plank relating to President Taft's administration was in part as follows: "We enthusiastically endorse the progressive and statesmanlike leadership of William Howard Taft and declare our pride in the achievements of his first eighteen months as President of the United States. Each succeeding month since his inauguration has confirmed the nation in its high esteem of his greatness of character, intellectual ability, sturdy common sense, extraordinary patience and perseverance, broad and statesmanlike comprehension of public questions and unfaltering and unswerving adherence to duty." The platform strongly commended the new tariff law. It declared that this measure had reduced the average rate of all duties 11 per cent., and had turned a national deficit into a surplus. It was urged that Congress should by joint rule permit the consideration and revision of separate schedules. The platform reviewed the record of Congress and commended the appointment of Governor Hughes to the Supreme Court. It

avored the encouragement of agriculture, the conservation, development and utilization of the natural resources of the State. The paragraph concerning direct nominations was as follows: "To Governor Hughes is due the credit for arousing the interest of the people and convincing them of the need of directly electing their party officers and directly nominating their party candidates. We promise legislation which will enact these principles into law."

The Democratic State Convention was held at Rochester on September 15. The candidate most talked of for the nomination for governor prior to the convention was Mayor William J. Gaynor of New York City. In two letters written to be read to the delegates to the convention, however, he refused to be considered as a candidate. He made the statement that if nominated he would decline to accept. At the opening session of the convention, Alton B. Parker, formerly Democratic candidate for the presidency, was temporary chairman. He made a long speech in which he attacked Mr. Roosevelt, denounced the "new nationalism," reviewed the history of the tariff legislation, asserting that there had been a corrupt alliance of the Republican political machines with the trusts and corporations for the benefit of the campaign fund. The convention was in the practical control of C. F. Murphy, leader of Tammany Hall. The permanent chairman was Herbert T. Bissell, and he too in his address dealt largely with the career and opinions of Mr. Roosevelt. After the elimination of Mayor Gaynor there was no candidate for the governorship who stood out conspicuously over all others, and it was only after a great deal of consideration that it was decided to nominate John A. Dix of Albany, Chairman of the State Committee. He at first refused the nomination, but finally accepted on condition that the other aspirants should unite in his support. All withdrew except Congressman Sulzer, who in the voting received 16 votes, while Mr. Dix received 434. The platform adopted by the convention began and ended with denunciations of the new nationalism advocated by Mr. Roosevelt, and contained the assertion, "The party pledges itself anew to the old nationalism embodied in the Constitution." The Payne-Aldrich tariff law was attacked with the assertion that it increased the exactions of former Republican tariffs and placed great additional burdens upon the shoulders of the average man, thereby largely contributing to the present high cost of living. The alleged Republican extravagance and legislative corruption were assailed and a plank was included favoring State-wide direct primaries. The popular election of United States Senators, extension and development of the parcels post, a constitutional amendment to permit the imposition of an income tax and the extension of the merit system were favored.

The campaign which followed the nominating conventions was one of the most aggressive in the political history of the State. Mr. Roosevelt took an active part, speaking in nearly every important town and city, and Mr. Stimson also made active campaigning. Mr. Dix made no regular campaign but concerned himself with several carefully prepared addresses, one of which was delivered in New York City. On October 28, Senator Root made an address in New York City in regard to the issues of the campaign. Among his significant utterances was

the following: "A good many Republicans at this time seem to ignore all the grave and substantial issues which are before the people of this State and intend to vote at the coming election upon no issue whatever, but simply as an expression of feeling against Mr. Roosevelt, whose course regarding national affairs they disapprove for one reason or another, and whom they desire to punish by defeating the party to which they belong, in which they believe and which they have long loyally supported, because he holds a distinguished and potent place in the councils and activity of the party." After praising the administration of President Taft and declaring that if he continued to be as good a president in the future as he had been in the past he would be renominated in 1912, he said: "If it should happen that the administration cannot hold its own party together, the national convention would be quite likely to look for a Moses to lead them out of the wilderness and they might go to Mr. Roosevelt or they might go to one of the far more radical leaders who are now looming up in the political horizon in the North and Middle West." He declared that Mr. Roosevelt well knew that all his efforts in behalf of the Republican candidates were services in aid of the Taft administration intended toward the renomination of Mr. Taft in 1912. He denied that Mr. Roosevelt had criticised the courts unfairly and asserted that he could see nothing new in the so-called "new nationalism" except that there should be a renewed and active sense of loyalty and duty to the old doctrines and the old ideals of American democracy. He praised Mr. Roosevelt's action in making the fight in the State convention and spoke highly of Mr. Stimson. In conclusion he said: "Some of you are thinking, because of a temporary side-wind of personal feeling and prejudice, of deserting the cause for which we have been fighting together for many years and giving aid and comfort to all that you most abhor in politics. I beg of you not to do it. You would gratify a momentary feeling but you would do a harm to your country and to your State and you would regret it hereafter."

In spite of the efforts of Mr. Roosevelt and the Republican nominees, the indications for Democratic success were apparent from the very beginning of the campaign. This was foreshadowed by the defeat on April 19 of George W. Aldridge by James S. Havens, who contested for the seat in Congress made vacant by the death of James Breck Perkins (see below). The vote on November 8 was as follows: Dix, Democrat, 689,700; Stimson, Republican, 622,299 or a plurality for Mr. Dix of 67,401. That the Democratic success was brought about rather by a diversion of Republican votes to the Democratic nominee than by a marked increase in Democratic votes is shown by the fact that Mr. Dix received over 100,000 less votes than were cast for Mr. Chanler, the Democratic nominee for governor in 1908. Mr. Chanler at that time received 735,189 votes. The voters of New York State, outside of New York City, in 1908 cast almost 500,000 votes for Governor Hughes, while in 1910 they cast considerably less than 400,000 for Mr. Stimson. While a considerable responsibility for the Republican defeat no doubt came from the factional differences in the party, it was doubtless due in greater measure to the general Democratic trend throughout the United States, resulting from dissatisfaction

with the Payne-Aldrich tariff bill and other causes with which the administration of Mr. Taft was identified. Those unfriendly to Mr. Roosevelt attributed to him a large responsibility for the Republican defeat, but his friends pointed out Democratic victories in other States of equal magnitude for which he could not have been held responsible.

With Mr. Dix was elected the entire Democratic ticket giving the Democrats control of the State for the first time since the administration of David B. Hill.

**OTHER STATE EVENTS.** As a result of the publication of charges relating to the purchase of land by the State for forest reserve in the Adirondacks and the Catskills where the State owns 1,641,000 acres, for which about \$3,500,000 has been paid, commissioners were appointed by Governor Hughes to make an investigation. It was alleged that large tracts were bought at tax sales for a few cents an acre and turned over to the State at very much higher prices, and that influential politicians benefited by these transactions. Senator Allds was among the counsel employed by the State Forest Commission in connection with the acquisition of land for the reserves.

On April 19 an election was held to fill the vacancy caused by the death of James Breck Perkins. The Republicans nominated George W. Aldridge, who for many years had been a so-called boss of Republican politics in Rochester and one of the managers of politics in the State. The Democrats selected as his opponent James S. Havens, a lawyer who had not been known in recent politics and who had no organization by which to oppose the political machine of Mr. Aldridge. In spite of this Mr. Havens was elected by a plurality of nearly 6000 votes. This result was no doubt largely due to the opposition to Mr. Aldridge by many independent voters.

An extraordinary session of the Supreme Court was convened in May by Governor Hughes to consider cases of alleged corruption among State officials at Schenectady. Fifty indictments were found against 27 persons. It was alleged that they had defrauded the county by false bills and in other ways. The offenses named were larceny, perjury, forgery and misdemeanors. It was charged that the county was systematically defrauded in payments for labor and supplies. The indicted officials were found guilty and were sentenced to fines ranging from \$1000 to \$500.

On April 25 Governor Hughes accepted the nomination to the bench of the United States Supreme Court tendered him by President Taft (see *UNITED STATES, Federal Judiciary*). He did not go on the bench, however, until October, when he was succeeded as governor by Horace White. On January 5, Governor Hughes announced a gift to the State of 11,000 acres of land and \$1,000,000 for creating a State park in Orange and Rockland counties, by Mrs. E. H. Harriman. Other contributions for the same purpose, aggregating \$1,625,000 were made public at the same time. The legislature passed measures authorizing the acceptance of this gift. On April 26 the Court of Appeals declared constitutional the law limiting the labor of railway telegraphers to eight hours a day (see *LABOR*).

**NEW YORK CITY.** The administration of Mayor Gaynor was in many respects the most

satisfactory enjoyed by the city for many years. There was an unusual lack of charges brought against city officials. The exception, however, was in the case of Queens Borough, where President Lawrence Gresser was subjected to examination for misconduct in office and petitions were made to Governor Hughes for his removal. Mr. Gresser was indicted on several charges for the alleged auditing of fraudulent claims against the city. The matter had not been decided at the end of the year.

The city budget for 1910 was \$163,130,270, while the budget for 1911 was \$174,079,335. The interests of the citizens during the year were more directly concerned with increased subway accommodations than with any other question. By the terms of the city charter the amount that can be expended by the city in a given year is ten per cent. of the city debt. The legislature passed measures exempting water and dock bonds from being included in the sum which made up this limit on the ground that they were self supporting. This gave the city a balance of \$60,000,000 which could be expended in public improvements, including subways. Several important plans for subway extension were presented by the Public Service Commission during the year. The first of these was the so-called tri-borough system, the plans for which have been in preparation for two or more years. This included a number of lines connected more or less directly with the present interborough system. Two methods were proposed for the construction of this route, the first by private capital and the second by the city. Bids were submitted on both methods. There were no bids for private construction, but several were received for construction with city funds. Before these contracts could be awarded, however, the Interborough Company, which operates the present subway and elevated lines, offered to continue the construction of this road and to build new lines if the city would contribute a portion of the cost, about \$52,000,000. The company itself offered to spend \$75,000,000. Another offer was presented by Mr. W. G. McAdoo, the builder of the Hudson River tunnels to New Jersey, but this offer was afterwards withdrawn. The Public Service Commission favored the acceptance of the offer made by the Interborough after it had received certain modifications. The Board of Estimate and Apportionment, which has the final decision, was considering the Interborough offer and other offers at the end of the year.

The year saw the destruction of the famous old Grand Central Station to make room for the magnificent new structure to be erected on its site.

On August 9, Mayor Gaynor, while boarding a vessel for Europe, was shot by a man named Gallagher, a former city official, who had been discharged for inefficiency. Mr. Gaynor, after several months of severe illness recovered sufficiently to attend to his duties. During his illness, John Purroy Mitchell, President of the Board of Aldermen, administered the affairs of the city as acting mayor. He carried on a series of aggressive attacks upon the conduct of police and severely criticised the Police Commissioner, W. H. Baker. Shortly after the Mayor's recovery, Mr. Baker was removed and John C. Cropsey of Brooklyn was appointed Police Commissioner, while William Flynn, who had charge of the United States Secret Service

in New York City and who had done notable detective work, was appointed Chief of the Detective Bureau.

A budget exhibit, similar to that held in 1909, except that it was made at the expense of the city, was attended by thousands of citizens. The object of these exhibits is to acquaint the public in the matter of the expenditure of the city money. Mayor Gaynor abolished during the year several commissions including several on water supply and aqueducts, which had been a source of expense to the State and city for many years.

**LEGISLATION.** Among the important measures passed at the legislative session of 1910 were the following: A new automobile law was enacted. This exempts from taxation as property all automobiles except commercial cars. Chauffeurs must pass a simple examination before obtaining a license. A new act for licensing and regulating private banking was passed. A deposit of \$10,000 with the State comptroller, and a bond with sufficient sureties, are required. Money received for transmission to a foreign country must be forwarded within five days. Hotel keepers, telegraph companies, express companies and private bankers who do business of less than \$500 in amount annually, and file bonds for \$100,000 in New York City and \$50,000 elsewhere, are exempt from this law. The child labor laws were amended by two acts. One of these provided that no minor under 16 years of age is permitted to work in any mercantile establishment, office, hotel or as a messenger more than 54 hours a week, nine hours a day or between seven at night and eight in the morning. No female between 16 and 21 years of age is permitted to work more than 60 hours a week or ten hours a day in any mercantile establishment except during the week before Christmas. Measures were also passed regulating the employment of children in certain dangerous trades. A measure was passed appropriating \$10,000 with which the Forest, Fish and Game Commission was to purchase and propagate trees to re-forest lands in the forest reserves. The Federal income tax amendment was defeated by a narrow majority in one House after passing the other. Several important measures were passed relating to education. A retirement fund for teachers who have reached the age of seventy years was established. These teachers must have been connected with a State educational institution at least ten years and must have taught 30 years in all. In case of disability, retirement is authorized at the age of 65. Each pensioner receives half his salary at the date of his retirement, and in any event at least \$300 as a minimum. The employers' liability law was modified by throwing upon the employer the burden of showing the employee's contributory negligence. An important measure was passed relating to State insurance of workmen against accidents, by permitting the risk of accident to be voluntarily assumed by the industry. Employer and employee are permitted to consent in writing to a compensation plan. Except for accidents caused by the employee's wilful misconduct, the employer is to pay in compensation for any injury leading to the workman's death a sum equivalent to 1200 times his daily wage if he left a dependent widow or child, or a proportion thereof in certain cases. The maximum payment is \$3000. If he leaves no dependent widow or child the employer is to pay the em-

ployee's funeral expenses up to \$100. When the injury does not lead to death, but the employee is partly or totally incapacitated for work, the employer is to make weekly payments not more than 50 per cent. in amount of the employee's full time weekly wage. Disputes are to be settled by agreement or arbitration, or a lawsuit may be brought as on a written contract and a lump sum given to the plaintiff as a judgment. The employee's claim is not assignable or attachable, is on the preferred basis of a claim for daily wages, and no attorney can claim a lien thereon unless with the approval of the court. The contract between employer and employee may be cancelled by either party on 60 days' notice to the other. The act is not applicable to railroads. A measure was passed regulating the sale of cocaine in the State.

Among the measures passed relating to the sale of liquors was one providing for a revision of the list of persons to whom the sale of liquor is forbidden. This prohibition includes minors under 18, habitual drunkards, Indians, intoxicated persons, inmates of State institutions and persons to whom a dealer has been requested in writing not to sell by some member of the person's family. A new inheritance tax amendment was passed at a special session after the governor had vetoed the measure adopted at the regular session. This law fixes the tax by the amount of each individual inheritance after making certain exemptions. The law applies to most property of non-residents, including shares in New York corporations. Other changes were made in the tax laws of the State. Important legislation was enacted relating to white slaves, as a result of the agitation carried on during 1909-10. See **JUVENILE COURTS and PROSTITUTION**; also **POPULATION, CONGESTION OF**.

**STATE OFFICERS, 1910:** Governor, John A. Dix; Lieutenant-Governor, Thos. F. Conway; Secretary of State, Edward Lazansky; Comptroller, William Sohmer; State Treasurer, John J. Kennedy; Attorney-General, Thomas Carmody; State Engineer and Surveyor, John A. Bensel; Superintendent of Insurance, William H. Hotchkiss; Superintendent Banking Department, Orion Howard Cheney; Superintendent State Prisons, Cornelius V. Collins; Superintendent Public Works, \_\_\_\_\_; Commissioner of Education, Andrew S. Draper; Chairman Commission in Lunacy, Dr. A. W. Ferris.

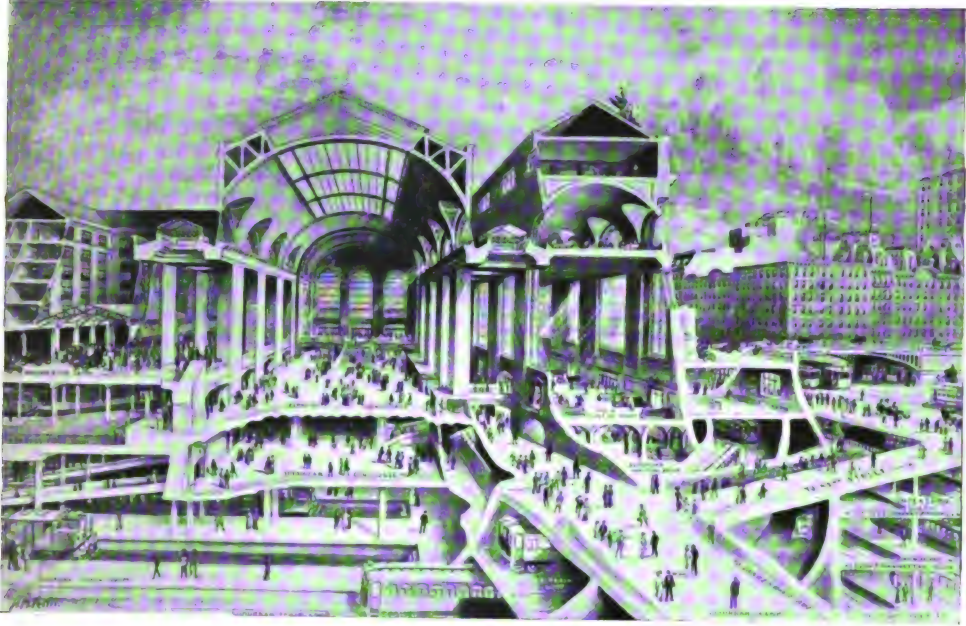
**STATE LEGISLATURE:** Senate, Republicans, 29; Democrats, 21; Independence League, 1. Assembly, Republicans 63; Democrats, 85; Independence League, 1; Independent Democrat, 1. Joint ballot, Republicans, 92; Democrats, 106; Democratic majority, 14.

**NEW YORK BARGE CANAL.** See **CANALS**.

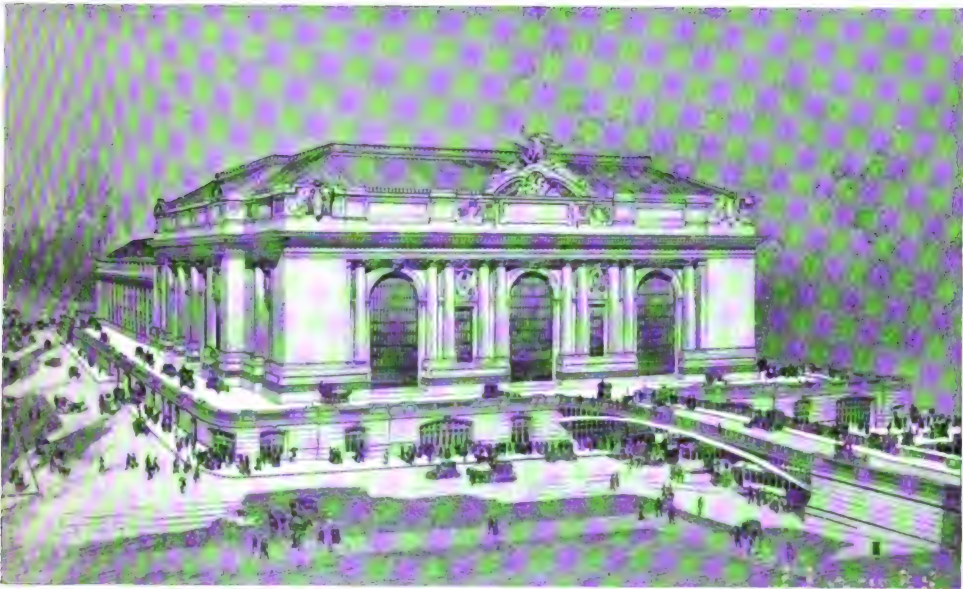
**NEW YORK FOUNDATION.** See **CHARITY**.  
**NEW YORK, NEW HAVEN AND HARTFORD RAILROAD.** See **RAILWAYS**.

**NEW YORK-PHILADELPHIA WATERWAY.** See **CANALS**.

**NEW YORK PUBLIC LIBRARY.** A public institution founded in 1895 for the consolidation of the Astor Library, the Lenox Library and the Tilden Trust. The library includes forty branches in different parts of the city, which form its circulation department. Among the buildings occupied by these branches are 32 erected from the Carnegie Fund. The Astor and Lenox libraries compose the reference department from which books cannot be removed.



**GRAND CENTRAL TERMINAL, NEW YORK CITY**  
Sectional View



**GRAND CENTRAL TERMINAL, NEW YORK CITY**  
General View

১৭০৬

In the reference branches during 1910 readers and visitors numbered 232,506. The total number of volumes catalogued in the two reference branches numbered in 1910 1,674,705. During the year there were catalogued 54,846 volumes and 42,395 pamphlets. The number of volumes in the circulation departments in 1910 numbered 809,350, and the circulation for home use during the year numbered 7,506,976 volumes. The new library building at Fifth Avenue and 42d Street is practically completed as to the exterior and work progressed so far during the year on the interior that it is expected that the library will be opened to the public May, 1911, or soon afterwards. The total expenditures for the calendar year 1910 amounted to \$872,835, of which \$216,150 were spent for the reference department and \$656,685 for the circulation department. On the staff of the library are 732 persons. The Director is John S. Billings.

**NEW YORK SCHOOL OF PHILANTHROPHY.** See CHARITY.

**NEW YORK UNIVERSITY.** An institution of higher learning at University Heights, New York City, founded in 1830. The total enrollment in 1909-10 was 4040, divided as follows: College of Arts and Pure Science, 176; College of Applied Science, 211; Graduate School, 281; Summer School, 563; School of Pedagogy, 465; Washington Square Collegiate Division, 342; School of Commerce, 970; University Law School, 739; Woman's Law Class, 47; University Medical College, 476; Veterinary College, 12. The most notable event in the history of the University during the year was the resignation of Chancellor Henry Mitchell MacCracken (q. v.), which took effect September 28, 1910. Harold D. Senior was appointed professor of anatomy and director of the laboratories of anatomy and histology in the University and Bellevue Hospital Medical College. As a result of the bequest from the estate of the late John S. Kennedy, amounting to \$750,000, the University was able in the autumn of 1910 to pay off its entire funded debt. A gift of \$100,000 by Helen Hartley Jenkins was used to found the Marcellus Huntley Chair of Medicine. The endowment fund of the University amounted to \$1,102,000 and the income for the year 1909-10 was \$416,934.

**HALL OF FAME.** In 1910 eleven names were added to those already in the Hall of Fame at the New York University by the vote of the Board of 100 electors. The names chosen with the votes given for each are as follows: Harriet Beecher Stowe, 74; Oliver Wendell Holmes, 69; Edgar Allan Poe, 69; Roger Williams, 64; James Fenimore Cooper, 62; Phillips Brooks, 60; William Cullen Bryant, 59; Frances E. Willard, 56; Andrew Jackson, 53; George Bancroft, 53; John Lothrop Motley, 51.

Of the names already in the Hall of Fame, 29 were chosen in 1900 and 11 in 1905, making the total now incorporated 51. The total number of ballots cast in 1910 was 97 and the number required for a choice was 51. Those who failed of election by less than ten votes were the following: Samuel Adams, 41 votes; Daniel Boone, 42; Patrick Henry, 44; Mark Hopkins, 45; Francis Parkman, 45; Charlotte Saunders Cushman, 45; Lucretia Mott, 41; Martha Washington, 43.

In the election of 1910 no representative of the scientist group or of the soldier or jurist groups secured election. The election was of

particular interest in that the name of Edgar Allan Poe was admitted to the Hall of Fame after having been refused at each previous election.

**NEW YORK ZOOLOGICAL SOCIETY.** The New York Zoological Society was incorporated in 1895 under a special charter granted by the legislature of the State of New York. The object of the society are, a public zoological park; the preservation of our native animals and the promotion of zoölogy. Control of the Zoological Park, which comprises the southern part of Bronx Park, 264 acres in extent, was assumed by the Society in July, 1898. In area, elaborateness of structures and number of specimens, it is the largest and most highly developed zoölogical park in the world. The city of New York provides an annual maintenance fund. The animal collections, which numbered on January 1, 1911, 1160 species, 5163 specimens, are provided by the Society.

The attendance during 1910 was 1,441,342 and the total attendance from 1900 to 1910 inclusive was 12,354,870.

The Society controls and manages the Aquarium in Battery Park, and through its efforts has developed the largest and most complete institution of its kind in the world. The attendance at the Aquarium is by far the largest of any public institution in the world. The Society is actively engaged in the protection of animal life throughout the world, and particularly the preservation of the native animals. It has been instrumental in establishing a herd of bison in southwestern Oklahoma, presenting to the United States government fifteen bison from the large collection in the Zoölogical Park, as the nucleus of a herd established in the Wichita Forest and Game Preserve. The membership of the society in 1910 was about 1770. The officers of the society are: Henry Fairfield Osborn, president; Samuel Thorne and John L. Cadwalader, vice-presidents; Madison Grant, secretary and chairman of the Executive Committee; and Percy R. Pyne, treasurer. Dr. William T. Hornaday is director of the Zoölogical Park, and Dr. Charles H. Townsend of the Aquarium.

**NEW ZEALAND, DOMINION OF.** A self-governing dependency of Great Britain, consisting of a group of islands in the South Pacific. Capital, Wellington.

**AREA AND POPULATION.** Total area, 104,751 square miles (North Island, 44,468; South, 58,525; Stewart, 665). Population (1906), 936,309, including 47,731 Maoris; estimate (June 30, 1910), 1,048,347. Immigration and emigration in 1908, 44,970 and 30,709, respectively. Estimated population of chief towns, with suburbs (January 1, 1910): Auckland, 97,929; Christchurch, 78,605; Wellington, 76,390; Dunedin, 62,584.

**EDUCATION.** Primary instruction is free, secular, and compulsory. In December, 1909, there were 2057 public primary schools, with 4310 teachers and 152,416 pupils; in addition, there are reported 306 private schools, with 17,930 pupils, and 94 village schools for Maoris. There are 31 secondary and collegiate schools, 4 normal, 5 art, and 11 industrial schools, and 7 schools of mines. Total public expenditure on education in the year 1908-9, £1,096,000.

**PRODUCTION.** The area under crop and broken up in 1910 is reported at 1,914,487 acres, besides over 13,600,000 acres in sown grasses. In 1908, there were 252,391 acres sown to wheat, producing 8,773,000 bushels; oats, 406,908 acres

and 18,907,000 bushels; barley, 48,853 acres and 1,983,000 bushels. Livestock (1909): 363,259 horses, 1,773,326 cattle, 22,449,053 sheep, and 245,092 swine. Wool clip (1908), 167,297,679 pounds. Chief mineral production in 1908: Gold, 506,423 ounces, valued at £2,004,925 (£2,027,490 in 1907); coal, 1,860,975 tons, £966,083 (£965,766 in 1907); silver, 1,731,336 ounces, £175,337 (£169,484 in 1907). The principal manufactures are meat freezing and preserving plants, establishments for tanning, wool scouring, etc.; saw mills, grist mills, butter and cheese factories, and iron and brass works.

**COMMERCE.** Total imports and domestic exports and total exports have been valued as follows:

	Total Impts.	Dom. expts.	Total expts.
1905 .....	£12,828,857	£15,503,530	£15,655,947
1906 .....	15,210,403	17,840,346	18,095,137
1907 .....	17,302,961	19,783,138	20,068,957
1908 .....	17,471,284	15,894,530	16,317,494
1909 .....	15,674,719	.....	19,661,996

Leading imports in 1908: Clothing and materials therefor, £3,867,493; iron and steel goods, machinery, etc., £3,671,138; paper, books, etc., £718,983; sugar, £592,849; alcoholic liquors, £447,292; oils, £410,510. Values of principal exports (domestic) in 1908 and 1909: Wool, £5,332,781 and £6,305,888 respectively; frozen meats, £3,188,515 and £3,601,093; butter and cheese, £1,954,601 and £2,744,770; gold, £2,004,799 and £2,007,043. Other exports in 1908 were: Hides, skins, and leather, £791,213; tallow, £481,335; phormium (fibre), £396,288; kauri gum, £372,798. Quantity of leading exports in 1908: Wool, 162,518,481 pounds; frozen meat, 2,120,303 hundredweights; butter, 229,971 hundredweights; cheese, 280,798 hundredweights; kauri gum, 5530 tons. Gold exports to December 31, 1909, aggregated £75,530,946.

Trade is chiefly with Great Britain, imports therefrom and exports thereto being valued at £10,441,837 and £13,143,780 respectively in 1908; Australia, £2,841,426 and £2,103,161; United States, £1,643,937 and £326,415.

Exclusive of coasting vessels, there entered in 1909 605 vessels, of 1,263,935 tons, and cleared 596, of 1,253,878.

**COMMUNICATIONS.** In March, 1910, there were open to traffic 2717 miles of government railway and 29 miles of private. For the year ending March 31, 1909, revenue from government railways, £2,929,526; expenditure, £2,114,815. Telegraph (1910), 10,901 miles of line (34,788 of wire); post-offices (1909), 2194.

**FINANCE.** For the fiscal years ended March 31, 1909, and 1910, revenue amounted to £9,001,185 and £9,238,917 respectively; expenditure, £8,785,513 and £8,990,992; in addition there were expenditures from loan accounts and "land for settlement acts" amounting to £4,294,727 in the former year and £3,112,153 in the latter. Revenue is derived largely from customs, railways and stamps; the chief items of expenditure are public debt charges (£2,258,365 in 1908-9), railways, education, and posts and telegraphs. At the end of the fiscal year 1909, the public debt was £70,938,534 and the sinking fund £3,156,989; 1910, £74,890,645 and £3,112,065.

**GOVERNMENT.** The style "Dominion" superceded "Colony" September 26, 1907. The executive authority is vested in a governor, who is appointed by the Crown and is advised by a

responsible ministry. The legislative power devolves upon a parliament of two houses, the Legislative Council (42 members, appointed by the governor) and the House of Representatives (80 members, including four Maoris, elected triennially by universal adult suffrage). In April, 1910, Sir John Poynder Dickson-Poynder, created first Baron Islington in 1910, succeeded, as governor, Rt. Hon. William Lee Plunkett, Baron Plunkett. Prime minister in 1910, Sir Joseph George Ward.

Attached to New Zealand are the Auckland Islands (uninhabited), Chatham Islands (375 square miles, about 400 population), Kermadec Islands (15 square miles), and Cook Islands and others (upwards of 280 square miles, population over 13,000). The Cook Islands have a legislature and an executive council, whose enactments require the approval of the British resident (Capt. J. Eman Smith, at Rarotonga). Niue Island has a council and resident (H. G. Cornwall) of its own.

**HISTORY.** Sir Joseph Ward announced on May 5 that the government had decided to carry out the plans recommended by Lord Kitchener, and would introduce the necessary legislation which would include the increase of the period for compulsory training to 25 years, and a peace establishment of 20,000 trained men between the ages of 19 and 25, besides the 38,000 junior and senior cadets between the ages of 12 to 18, and the 10,000 recruits between 18 and 19. The Premier estimated the annual cost of internal defense at £400,000. The government programme included the following measures of social legislation: National annuities for disabled workers; relief of widows with young children and women in maternity, each measure being based on the contributory principle. Lord Plunkett, whose term of office had expired, received a public farewell on June 1. Parliament was opened on June 28 with a speech from the new Governor, Lord Islington. The legislative programme included a sinking fund scheme for the repayment of the public debt; prison reform, state assumption of the sources of water power, land settlement, state aid in maternity cases, anti-trust laws, and the introduction of last year's land bill with amendments. The principle of assisted immigration for boys from England was discussed in July, when it was attacked by the Labor members and defended by the Minister of Agriculture, who declared that it was the part of wisdom to co-operate with Great Britain in inducing young men to settle in the country. Sir Joseph Ward introduced the Defense Amendment bill on September 23, based on Lord Kitchener's recommendations. This raised the number of men liable to military training from 30,600 to 75,000. After exemptions the number would be 50,000, all of whom were liable to service at the age of 25. It was to go into full operation in 1913. In October the government introduced a no-licensing bill which included a proposal for national Prohibition if 55 per cent. of the voters favored it, and provided in that case that no intoxicating liquors should be manufactured, sold or imported. The workings of the Arbitration Act were criticised by the New Zealand Employers' Federation. This declared in October that there was evidence of a tendency on the part of the unions to revert to their former attitude and seek to control by strength instead of arbitration. The employers declared that the

men were more persistent than ever in their demands for higher wages and shorter hours, and that the present situation was unsatisfactory since the men were not loyal to the Act. The Act should, in their opinion, be repealed or the working classes should be made to change their attitude toward it. The Licensing Bill passed its second reading early in November. It provided for a referendum on the question of the continuance of the present licenses or no license and also on the question of national prohibition. To carry the measure 60 per cent. of the voters was necessary. It was estimated that the loss of revenue would be £800,000. National Prohibition, if carried, would not go into effect until after four years. See **ANTHROPOLOGY AND ETHNOLOGY**.

**NIAGARA POWER PLANT.** See **TRANSMISSION OF POWER**.

**NICARAGUA.** A Central American republic. The capital is Managua.

**AREA AND POPULATION.** The area is estimated at 49,552 square miles. The estimated population is about 600,000, mainly Indians and mestizos. Persons of unmixed white race are few in number. The larger towns, with estimated population, are: León, 63,000; Managua, 40,000; Granada, 25,000; Matagalpa, 16,000; Masaya and Bluefields, 15,000 each. There have been reported 356 elementary schools and several institutions for secondary education. The prevailing form of religion is Roman Catholicism.

**INDUSTRIES.** Agriculture is the principal industry, and the leading crops are coffee, bananas, and sugar-cane. The coffee yield in 1908 was about 14,000,000 pounds. For 1909 the yield was estimated at 16,800,000 pounds, but on account of the revolution hardly a third of the acreage was harvested, and the total yield probably did not exceed 4,000,000 pounds. So unsettled were political conditions in 1909 and 1910 that scarcely any trustworthy statistics of production or commerce were issued. In 1907 the sugar output, including the by-products molasses and spirits, was valued at \$1,122,000. Cacao, tobacco, corn, and rubber are produced. The forests contain cabinet and other valuable woods. Numerous mineral deposits occur, but mining is largely restricted to gold.

**COMMERCE.** Government statistics have not been published, but an estimate places the import and export values for 1909 at about \$3,500,000 and \$3,600,000 respectively, against about \$3,452,000 and \$4,500,000 in 1908, and \$3,408,830 and \$4,231,048 in 1906. Leading exports in 1906 were: Coffee, 19,378,216 pounds, valued at \$1,375,679; bananas, 1,401,595 bunches, \$700,069; gold bullion and amalgam, \$870,969; rubber, \$385,472; mahogany, \$284,320. The United States has been first in both import and export trade, followed by Great Britain, Germany, and France.

**COMMUNICATIONS.** A railway connects the Pacific port Corinto with León, Managua, Masaya, Granada (on Lake Nicaragua), and Diriamba, totalling 171 miles. Steamship traffic is carried on between Granada and San Juan del Norte, on the Caribbean coast at the mouth of the San Juan River. Reported telegraph wire mileage, 3637, with 130 offices; telephone, 805 miles; post-offices, 135.

**FINANCE.** Revenue and expenditure, in thousands of paper pesos, are stated as follows:

	1904	1905	1906	1907
Revenue.....	9,554	11,580	12,065	10,219
Expenditures....	10,892	9,522	9,818	10,287

Later figures are not available. The paper peso fluctuates in value, but may be regarded as worth about 16 cents.

According to an official statement made in April, 1910, the entire public debt on December 31, 1909, was 67,229,533 pesos silver. As the value of the peso on that date was approximately 37½ cents, the debt was equivalent to \$25,211,075 in United States money. Of the total, the foreign debt was 36,585,397 pesos; treasury vouchers, 20,833,479; internal loans, 1,264,963; obligations on current account, 8,545,695. The principal item under treasury vouchers was treasury bank notes to the amount of 12,149,104 pesos outstanding. It is worthy of notice that in 1893 the total debt was only 4,532,129 pesos.

**GOVERNMENT.** The constitution of March 30, 1905, vests the executive authority in a president, elected by direct vote for six years and assisted by a responsible cabinet of five ministers. The congress is unicameral. In 1893 Gen. José Santos Zelaya made himself president in virtue of successful revolution. His position was legalized by the constitution of the following year. He served for the three four-year terms 1894-1906 and was re-elected for the term 1906-12. In 1909 there developed a revolution headed by Gen. Juan J. Estrada, who was declared provisional president in October and whose government was recognized by the United States on December 1. Zelaya resigned on December 16. The Zelaya faction, however, did not recognize Estrada, but declared José Madriz president, and civil war, between the followers of Estrada and of Madriz, continued in 1910 until late in August, when the revolutionists, as the Estrada party was called, captured Managua. On August 29, Estrada took charge of the government as provisional president. A congress elected later in the year convened December 31 and on that date unanimously declared Juan J. Estrada president for two years. Adolfo Díaz was chosen vice-president.

**HISTORY.** The revolutionary movement, which had kept the country in a turmoil during the closing months of 1909, resulted finally in the resignation of President Zelaya on December 16 of that year and the election in his place of Dr. José Madriz, Judge of the Central Court of Justice. Ex-President Zelaya took refuge in Mexico. Although it was generally believed that his overthrow was final he himself declared that he had given up his office only temporarily. One of the first acts of the de facto President, Dr. Madriz, was the acknowledgment that the execution of the two Americans, Cannon and Groce, by Zelaya's orders was illegal and that the anger of the United States at the affair was justified. War was continued after the resignation of Zelaya, the revolutionists adhering to their leader, General Estrada, and insisting that he should become President. They had been carrying on a successful campaign, defeating the government troops at Rama in December, and advancing by the middle of January far enough to threaten the capital, Managua. Estrada demanded the recognition of the revolutionists and the establishment of a provisional government under their direction. This President Madriz refused. The government troops and the revolutionists came into conflict on January 29, when

the former were defeated. A few days later the insurgents captured Boaca, which is 60 miles distant from Managua. On February 4, however, President Madriz was successful at Santo Tomás, and later, on February 6, the leader of the government troops announced that he had defeated the insurgents and was about to occupy Boaca. There were conflicting reports as to which side was gaining ground during the next two weeks, but it was later learned that on February 22 the government forces had been completely victorious, defeating General Chamorro, who escaped with only a few followers. The number of killed and wounded was placed at 800. At that time it appeared that the only hope for the revolution was a guerrilla warfare which, however, might be kept up indefinitely. There was some fear of a division of Nicaragua into two republics, the eastern half being favorable to Estrada. Gradually, however, the prospects of the revolutionists improved. The fighting continued until August, when Madriz, finding his cause hopeless, fled to Corinto. General Estrada who was proclaimed President on August 22, reached the capital, Managua, on August 29, where he was warmly welcomed. He afterwards appointed a Cabinet from the Conservatives. Many members of the opposing party were arrested. The new President submitted to Washington in September a plan for establishing a stable government in Nicaragua. It proposed that a commissioner should be sent to Nicaragua with power to arrange a treaty for the settlement of American claims.

**NICHOLAS I.** Crowned on August 28, 1910, the first king of Montenegro (see **MONTENEGRO**). He was born in 1841 in the village of Njegoš. He succeeded his uncle and predecessor, Prince Danilo as ruler of the principality in 1860, the latter having fallen at the hand of an assassin. Scarcely a year after his accession war broke out with the Turks, who were eager to avenge the defeats inflicted upon them by the Prince's father, Mirko, commonly called the "Sword of Montenegro," and in 1862 the troops of the Sultan entered the country at various points. Notwithstanding valiant defenses on the part of the Montenegrins the war proved disastrous and they were compelled to abandon the unequal struggle. Nicholas, who had received a good education, set himself resolutely, on the conclusion of peace, to ameliorate the condition of his people and improve their means of defense. With the aid of the Czar of Russia and Prince Michael of Serbia he rearmed and reorganized his forces, introduced an educational system and bestowed a constitution under which he surrendered certain prerogatives to the Senate. In 1875 the provinces of Bosnia and Herzegovina revolted and in the following year Prince Nicholas, in alliance with King Milan of Serbia, declared war against Turkey. The prince at the head of 11,000 men, invaded Herzegovina and gained a victory at Vochidol. The Servians, however, suffered reverses, and after four months an armistice was concluded. In the following spring Russia took the field and Prince Nicholas renewed the struggle with better prospects of success. In the campaign which followed he captured Nikšić, and then successively captured Antivari and Dulcigno. These successes realized the Montenegrin dream of reaching the Adriatic coast. Nicholas now proceeded to invest Skodra, but the conclusion of an armistice between Russia and Turkey put an end to the

war. The result of successes gained in this campaign was a great accession of territory by which the area of the principality was more than doubled. From that time peace has prevailed in Montenegro and Nicholas was enabled to carry out many of his projects for the moral and material regeneration of his country. On October 31, 1905, he announced to his people the gift of a free constitution with manhood suffrage, vote by ballot, a single chamber, and other provisions of an approved democratic type. He succeeded in having removed from the Berlin treaty the provisions which had entrusted to Austria-Hungary the administration of the maritime and sanitary police along the Montenegrin coast, and had closed the port of Antivari to the warships of all nations. On the anniversary of the fiftieth year of his accession, the Montenegrin Skupshtina voted him the title of King and thereby placed Montenegro among the kingdoms of Europe. The ceremonies in connection with the accession of Nicholas to the throne as King were attended by representatives of most of the countries of Europe.

**NICHOLSON, J. S.** See **LITERATURE, ENGLISH AND AMERICAN, Political and Social Science.**

**NICKEL.** See **ATOMIC WEIGHTS, MINERAL PRODUCTION.**

**NIGER, MILITARY TERRITORY OF THE.** A French territory in French West Africa (q. v.). Area, 1,300,000 square kilometres (501,200 square miles). Estimated population (1908), 1,053,157. Chief town, Niamey. Revenue in 1908, 1,824,746 francs (direct taxes, 1,115,174 francs; indirect taxes, 225,843; government subvention, 125,000; etc.); expenditure, 1,370,932. The administration is in the hands of the lieutenant-governor of Upper Senegal-Niger (q. v.). By the measures of Commandant Laverdure in Timbuktu and Commandant Mouret in Zinder, the pacification of these regions has progressed with notable results.

**NIGHTINGALE, FLORENCE.** An English philanthropist and nurse, died August 14, 1910. She was born in Florence, Italy, in 1820, and she took her name from that city. She was the daughter of an English gentleman who, with his wife, was traveling in Italy. As a young girl she had access to many medical books in the extensive library of her father and these she read and studied, acquiring an unusual education. Before she was seventeen it is recorded of her that she was skilled in science, nursing and mathematics, had a wide acquaintance with standard literature, was a fair artist, a clever musician, and an excellent linguist, speaking French, German and Italian. When she was eighteen years of age she was taken to London to be presented at Court. There she met Elizabeth Frye, the famous reformer, who had done much for the betterment of conditions in English prisons. She became interested in the idea of hospital work and in the course of a tour of the Continent in the following year she inquired into hospital systems. She subsequently spent nine years in visiting continental countries and studied their nursing sisterhoods. In 1851 she enrolled herself as a voluntary nurse in the training home at Kaiserswerth in Germany. She later studied in the Paris hospital conducted by the Sisters of St. Vincent de Paul, but her health broke down and she was obliged to return to England. When she recovered her strength she went to work in a hospital which had been

languishing through need of proper management. This she developed to a high state of efficiency. At the outbreak of the Crimean War, it was soon found that there was as much need of nurses as of soldiers. Miss Nightingale volunteered to go to the scene of war and she set out with a party of thirty-four nurses to take up the work. At first she met opposition among the surgeons and officers at the front, but by dint of perseverance and the great good that she accomplished, she soon conquered all the obstacles that were put in her way. Her work in the Crimea had the greatest possible influence on field hospitals, and on the treatment of the sick and wounded in all the wars that have come since that time. At the close of the war she was received in England with the greatest enthusiasm. She was presented with a fund of \$250,000 by the British people and this she used to establish a school for nurses in London. For several years she was inactive on account of her slow recovery from the cholera which she had caught at Sebastopol. The effects of the strain of this campaign never entirely left her. For many years she superintended this training school but retired from active life in the 80's. Her advice in regard to sanitary questions was eagerly sought, and she gave many useful suggestions to American nurses during the Civil War. Miss Nightingale had intimate friendship with many notable people of her day, including Lord Salisbury, Mr. Gladstone, Henry Ward Beecher, Canon Farrar and others. In 1907 she was gazetted as a recipient of the Order of Merit of British subjects who have won conspicuous distinction in the naval or military service or in letters, arts or science. She was the first woman to be so honored. In 1908 the freedom of the city of London was bestowed upon her. Only one other woman received this honor. On the occasion of her 90th birthday she received a message of congratulation from King George. Miss Nightingale never married. Among her publications are: *Notes on Hospitals* (1859); *Notes on Nursing* (1860); *Notes on the Sanitary State of the Army in India* (1863); and *Life or Death in India* (1874).

**NILE DREDGING.** See DREDGING.

**NILES, WILLIAM HARMON.** An American geologist and educator, died September 13, 1910. He was born in Northampton, Mass., in 1833. From 1862 to 1866 he was a student in comparative anatomy with Professor Louis Agassiz, and in the latter year graduated from the Lawrence Scientific School. This was followed by a year at the Sheffield Scientific School. From 1871 to 1892 he was professor of geology and geography at the Massachusetts Institute of Technology. After 1902 he was emeritus professor of geology. From 1888 to the time of his death he was professor and head of the department of geology at Wellesley College. For ten years he was lecturer on natural science at the Massachusetts State Teachers' Institute. From 1867 to 1890 he gave public lectures upon geological and geographical subjects. From 1892 to 1897 he was president of the Boston Society of Natural History. He was a member and correspondent of many scientific societies.

**NITON.** See CHEMISTRY.

**NITRATE.** See FERTILIZERS.

**NITRIFICATION.** See SOILS.

**NITROGEN.** See ATOMIC WEIGHTS.

**NOBEL PRIZES.** A series of prizes provided for by the will of Dr. Alfred Bernhard

Nobel. By this bequest the interest from a fund of \$8,400,000 is to be distributed annually to those "persons who shall have contributed most materially to benefit mankind during the year immediately preceding." The prizes are distributed in accordance with statutes signed by King Oscar of Sweden on January 29, 1900. The value of each prize is approximately \$30,000. The prizes include work in physics, chemistry, medicine, literature and in the advancement of peace. Prizes in science and literature are given at Stockholm and the prize for peace at Christiania on the anniversary of the death of the founder on December 10, on nominations submitted before the February 1 preceding. The right to make nominations is bestowed upon members of the Swedish academies, members of corresponding academies of other countries, professors holding proper chairs in Scandinavian and certain foreign universities, recipients of Nobel prizes, and other persons of distinction. Prizes awarded since the foundation of the fund, are given in the table below:

Name.	Year	Nationality
<b>Physics</b>		
Wilhelm Konrad Röntgen .....	1901	German
H. A. Lorentz .....	1901	Dutch
Pieter Zeeman .....	1902	Dutch
Henri Becquerel .....	1903	French
Pierre Curie .....	1903	French
Madame Marie Skłodowska Curie .....	1903	Polish
Lord Rayleigh .....	1904	English
Joseph J. Thomson .....	1906	English
Albert A. Michelson .....	1907	American
Gabriel Lippmann .....	1908	French
William Marconi .....	1909	Italian
Ferdinand K. Braun .....	1909	German
Johannes D. van der Waals .....	1910	Dutch
<b>Chemistry</b>		
Jakobus H. van't Hoff .....	1901	Dutch
Emil Fischer .....	1902	German
Svante Arrhenius .....	1903	Swedish
Sir William Ramsay .....	1904	English
Adolph von Baeyer .....	1905	German
Henri Moissan .....	1906	French
Eduard Buchner .....	1907	German
Ernest Rutherford .....	1908	English
Wilhelm Ostwald .....	1909	German
Otto Wallach .....	1910	German
<b>Medicine</b>		
Emil Behring .....	1901	German
Ronald Ross .....	1902	English
Niels R. Finsen .....	1903	Danish
Ivan Petrovich Pavlov .....	1904	Russian
Robert Koch .....	1905	German
Camillo Golgi .....	1906	Italian
Santiago Ramon y Cajal .....	1906	Spanish
Charles Alphonse Laveran .....	1907	French
Paul Ehrlich .....	1908	German
Elie Metchnikoff .....	1908	Russian
Theodor Kocher .....	1909	Swiss
Albrecht Kossel .....	1910	German
<b>Literature</b>		
Armand Sully-Prudhomme .....	1901	French
Theodor Mommsen .....	1902	German
Björnsterne Björnson .....	1903	Norwegian
Frédéric Mistral .....	1904	French
José Echegaray .....	1904	Spanish
Henryk Sienkiewicz .....	1905	Polish
Giosue Carducci .....	1906	Italian
Rudyard Kipling .....	1907	English
Rudolf Eucken .....	1908	German
Selma Lagerlöf .....	1909	Swedish
Paul J. L. Heyse .....	1910	German
<b>Peace</b>		
Henri Dunant .....	1901	Swiss
Frederic Passy .....	1901	French
Elie Ducommun .....	1902	Swiss
Albert Gobat .....	1902	Swiss
William R. Cremer .....	1903	English
Institute of International Law .....	1904	Internat'
Bertha von Suttner .....	1905	Austrian
Theodore Roosevelt .....	1906	American
Louis Renault .....	1907	French
Ernesto T. Moneta .....	1907	Italian
K. F. Arnoldson .....	1908	Swedish
M. P. Bajer .....	1908	Danish
d'Estournelles de Constant .....	1909	French
Auguste M. Beernaert .....	1909	Belgian
International Permanent Peace Bureau .....	1910	Internat'

**NOGUCHI, YONE.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**NOMINATION REFORM.** There has been no appreciable diminution of interest in nomination reform, although there has been an increasing appreciation of the fact that primary reform is only a step towards the restoration of popular government. Yet the best primary act, as the *Chicago Record-Herald* has wisely pointed out, is only a tool. It is not a substitute for hard work and intelligence. For a while there was danger that some of the more zealous advocates of the new politics might regard nomination reform as a panacea for all our political ills and as effective in itself. To-day nomination reform is to the forefront in those States which have not yet secured a law authorizing direct nomination. In those States where the law has been established the aim is to perfect and extend it, not to destroy it. The general result of recent experience, however, seems to show that where the voters are alert and interested the direct primary will accomplish the purpose for which it was intended.

Governor Fort of New Jersey, in an address before the meeting of the House of Governors (q. v.) at Louisville in December, 1910, declared: "The direct primary is here to stay. It will soon extend to all the States. Popular movements never go backward." Every governor present with the exception of one indorsed this sentiment of Governor Fort's address. The discordant note came from Governor Draper of Massachusetts, who had been defeated for re-election. Governor McGovern of Wisconsin not only advocated a direct primary, but declared that the "Wisconsin idea" will eventually become the law of every State. He said: "This is not a country of parties. Every voter should be allowed and encouraged to cast his ballot as he pleases. He should not be required to indicate in a primary election what party he favored. The future of this country rests with the independent voter, and he should be given all of the independence necessary. I don't think that it's any one's business whom I vote for, and it's none of my business whom my neighbor votes for." Governors Dineen and Hadley, who declared they were in favor of a direct primary for practically every office necessary for the conduct of State government, were of the opinion that Mr. McGovern went too far. They said a man should be proud to indicate his party affiliations and that the general primary law as practised in several States now was good enough. Both said they were party men and did not believe in allowing voters to "play horse" with candidates. Governors Marshall and Harmon, while making no public speeches, said they were in favor of the direct primary and believed it should extend to United States Senators.

New York was in 1910 the seat of a hard-fought campaign over direct nominations. A special legislative commission reported to the 1910 session. Testimony was taken before the committee at hearings in Boston, Philadelphia, Harrisburg, Pittsburg, Topeka, Des Moines, Saint Paul, Madison, Milwaukee, Chicago, Indianapolis and Detroit. It filled some 3000 pages. This report takes up the testimony State by State, giving a brief digest of the direct primary legislation of each State, a summary or brief of the testimony taken in each State, followed by the committee's observations on success of the laws.

Summarizing the report is a section of general observations with a marked bias against the direct primary principle, although the admission is made that there is a widespread and real demand for primary reform. To satisfy this the committee recommended the enactment of a bill providing:

A uniform primary day not earlier than September 1.

A joint primary election for all political parties recognized by the general election law to be held at regular voting places presided over by regular election officers and governed so far as possible by election day regulations.

A general Statewide enrollment of party voters to be made at the time of registration where personal registration is required, and on election day where registration is not required.

An official primary ballot printed at State expense with delegates' names arranged thereon so a straight or split ticket may be voted.

A direct vote at the primary to elect "party, county, town and ward committeemen." This phraseology implies a direct vote for State committeemen.

The abolishment of all intermediate conventions for electing delegates to other conventions.

The amendment of the corrupt practices act to include the primary elections.

Direct nominations were defeated in the regular session. Governor Hughes then called a special session, but he was again defeated through a combination of the reactionary elements in the Republican and Democratic parties. It was in connection with this measure in the extraordinary session that Colonel Roosevelt re-entered politics, sending to Chairman Griscom the following telegram:

"During the last week great numbers of Republicans and of independent voters from all over the State have written me urging the passage of direct primary legislation. I have seen Governor Hughes and have learned your views from your representative.

"It seems to me that the Cobb bill, with the amendments proposed by you, meets the needs of the situation. I believe the people demand it. I most earnestly hope that it will be enacted into law." See NEW YORK.

The Supreme Court of Wisconsin in July, 1910, declared the Wisconsin direct primary bill to be constitutional, and in December the Illinois Supreme Court declared by a vote of 4 to 3 the senatorial primary election law of that State constitutional. The Idaho law also received similar sanction in August.

**NORMAL SCHOOLS.** See EDUCATION IN THE UNITED STATES.

**NORRIS, G. W.** See NEBRASKA, *Politics and Government*.

**NORTH CAROLINA.** One of the South Atlantic Division of the United States. Its area is 52,426 square miles. Its capital is Raleigh.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 2,206,287, as compared with 1,893,810 in 1900, and 1,617,949 in 1890. The increase in the decade from 1900 to 1910 was 16.5 per cent. The State ranks sixteenth in point of population, whereas in 1900 it ranked fifteenth. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** The most important of the mineral products of the State are clay

products. These were valued in 1908, the latest year for which statistics are available, at \$943,968, as compared with a value of the product in 1907 of \$1,315,822. Next in point of value is stone, the product of which amounted to a value of about \$800,000. Monazite and zircon are produced in considerable quantities. Other products are talc, soapstone, lime, mineral waters and sand-lime brick.

**AGRICULTURE.** The acreage, production and value of crops are given for 1909 and 1910 in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	3,072,000	57,139,000	\$43,426,000
1909.....	2,898,000	48,686,000	41,383,000
Wln. wheat, '10	652,000	7,433,000	8,176,000
'09	570,000	5,415,000	6,877,000
Oats, 1910.....	190,000	3,458,000	2,075,000
1909.....	196,000	3,234,000	2,134,000
Rye, 1910.....	15,000	150,000	152,000
1909.....	13,000	122,000	126,000
Buckwheat, '10	5,000	95,000	76,000
'09	5,000	99,000	79,000
Potatoes, 1910..	26,000	2,314,000	1,689,000
1909.....	25,000	1,850,000	1,498,000
Hay, 1910.....	175,000	262,000a	3,825,000
1909.....	175,000	242,000	3,485,000
Tobacco, 1910..	216,000	129,600,000b	13,737,000
1909.....	240,000	144,000,000	13,680,000
Cotton, 1910..		675,000c	
1909.....		600,600	

a Tons. b Pounds. c Bales.

**EDUCATION.** The total school enrollment in the State in the year 1908-9, the latest for which statistics are available, was 521,202, while the total school population was 727,565. Of those enrolled 360,775 were white and 160,427 were colored. Of those enrolled 442,935 were in rural schools and 78,267 in city schools. The total number of teachers was 10,957, of whom 9370 were in rural schools and 1587 in city schools. The white teachers numbered 8129, and the colored teachers 2828. The average annual amount paid to each teacher in 1908-9 was \$165.02. The total value of school property was \$5,435,789.

**FINANCE.** The report of the treasurer for the fiscal year ending November 30, 1910, showed a balance on December 1, 1909, of \$123,830. The receipts for the year amounted to \$6,386,857 and the total disbursements to \$6,500,149, leaving a balance on November 30, 1910, of \$10,539. The State debt amounted on December 1, 1910, to \$7,239,550.

**CHARITIES AND CORRECTIONS.** The charitable and correctional institutions under the control of the State, with their populations in 1910, are as follows: State Hospital at Morganton, 1500; State Hospital at Raleigh, 1009; Hospital at Goldsboro, 916; Dangerous Insane Department, 66; Epileptic Colony at Raleigh, 159; School for the White Blind, 215; School for the Colored Blind and Deaf, 213; School for the White Deaf, 282; Soldiers' Home, 167; Oxford Orphanage for White Children, 376; Oxford Orphanage for Colored Children, 205; Stonewall Jackson Manual Training and Industrial School, 60; North Carolina Tuberculosis Sanatorium, 85. The greater number of the convicts of the State are in camps maintained by the counties. There were in these camps in 1910 1383 prisoners. In the State Prison at the end of the fiscal year there were 765 prisoners. The State maintains for these prisoners a camp near Elkin, where the convicts are employed on the Elkin

and Allegheny Railroad. Now a camp is maintained at Tar Heel.

#### POLITICS AND GOVERNMENT

There was no meeting of the State legislature in 1910, as the sessions are biennial and the last was held in 1909. The next session begins January 4, 1911.

**CONVENTIONS AND ELECTIONS.** The elections in November, 1910, were for minor State officers alone. The term of Governor Kitchin does not expire until January, 1913. The highest State official voted for was state auditor. The Democrats at their State Convention nominated W. P. Wood, while the Republicans nominated J. Q. A. Wood. Other nominations were for corporation commissioners, chief justice of the supreme court, associate justices of the supreme court and congressmen.

The platform adopted by the Democratic Convention condemned and denounced the tariff policy of the Republican party as enacted in the Payne-Aldrich tariff bill and declared it to be the most iniquitous tariff burden ever placed upon the United States. The Republican platform adopted by the convention of that party approved the administration of President Taft and congratulated him upon the Republican majorities in the Sixty-first Congress and the extraordinary number of wise measures enacted. The platform pledged allegiance to the Republican policy of protection and it commended the vigorous measures taken to conserve the national resources of the people.

As North Carolina is always strongly Democratic, Democratic nominations are ordinarily equivalent to an election. W. P. Wood, the Democratic candidate for state auditor, received 140,531 votes, as against 94,017 cast for J. Q. A. Wood, the Republican candidate. The other Democratic candidates were elected, including candidates for Congress. The Democratic majorities in most cases were large.

**STATE OFFICERS:** Governor, W. W. Kitchin; Lieutenant-Governor, W. C. Newland; Secretary of State, J. B. Grimes; Treasurer, B. R. Lacy; Auditor, B. F. Dixon; Attorney-General, T. W. Bickett; Superintendent of Education, J. Y. Joyner; Commissioner of Agriculture, W. A. Graham; Commissioner of Insurance, J. R. Young; Adjutant-General, R. L. Leinster—all Democrats.

**SUPREME COURT.** Chief Justice, Walter Clark, Democrat; Justices, Geo. H. Brown, Democrat; Wm. A. Hoke, Democrat; Wm. R. Allen, Democrat; P. D. Walker, Democrat; Thomas S. Kenan, Democrat.

**STATE LEGISLATURE, 1911.** Democrats, Senate, 43; House, 99; joint ballot, 142. Republicans, Senate, 7; House, 20; joint ballot, 27. Democratic majority, Senate, 36; House, 79; joint ballot, 115.

**NORTH DAKOTA.** One of the West North Central Division of the United States. It has an area of 70,837 square miles. Its capital is Bismarck.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 577,056, as compared with 319,146 in 1900 and 190,983 in 1890. The increase in the decade 1900 to 1910 was 80.8 per cent. The State ranks thirty-seventh in point of population, whereas in 1900 it ranked fortieth. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** The mineral products of the State are not important. They include clay products, natural gas, stone and coal; the last is the most important, the total production in 1909 being 404,496 tons, as compared with a production in 1908 of 320,742 tons.

**AGRICULTURE.** The acreage, production and value of leading crops are given for 1909 and 1910 in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	214,000	2,996,000	\$ 1,738,000
1909.....	195,000	6,045,000	3,325,000
Spring wheat, 1910.....	7,221,000	36,105,000	32,494,000
1909.....	6,625,000	90,672,000	83,501,000
Oats, 1910.....	1,628,000	11,396,000	4,217,000
1909.....	1,550,000	49,600,000	16,368,000
Barley, 1910.....	987,000	5,428,000	2,985,000
1909.....	987,000	20,727,000	8,913,000
Rye, 1910.....	15,000	128,000	81,000
1909.....	26,000	478,000	272,000
Flaxseed, 1910.....	1,605,000	5,778,000	13,578,000
1909.....	1,530,000	14,229,000	22,340,000
Potatoes, 1910.....	35,000	1,435,000	1,306,000
1909.....	40,000	4,400,000	1,980,000
Hay, 1910.....	188,000	103,000a	783,000
1909.....	194,000	266,000	1,300,000

a Tons.

**EDUCATION.** The total number of pupils of school age in the State on June 30, 1910, was 156,044. The total enrollment was 139,802 and the average daily attendance was 90,149. The average monthly salary of all teachers was \$51.80. The report of the Superintendent of Education for the fiscal year 1910 shows a steady growth of the educational institutions and schools of the State. The value of all school property at the end of the fiscal year was \$8,553,134.

**FINANCES.** The report of the State treasurer for the fiscal year ending October 31, 1910, showed a balance in the treasury November 1, 1909, of \$1,494,863. The receipts for the year were \$4,429,223, and the expenditures were \$4,982,528, leaving a balance in the treasury on October 31, 1910, of \$941,558. The chief expenditures were for education, support of State institutions and the maintenance of executive offices.

**CHARITIES AND CORRECTIONS.** The charitable and correctional institutions under the control of the State include the following: The Insane Asylum at Jamestown, the State Penitentiary at Bismarck, the School for the Deaf at Devil's Lake, the Reform School at Mandan, the Institution for Feeble-Minded Children at Grafton, the Blind Asylum at Bathgate, the Industrial School at Ellendale, and the Soldiers' Home at Lisbon.

#### POLITICS AND GOVERNMENT

There was no meeting of the State legislature in 1910, as the sessions are biennial, and the last was held in 1909. The next session begins Jan. 5, 1911. On Feb. 1, William E. Purcell was sworn in as United States Senator to succeed Fountain L. Thompson, resigned. Senator Purcell resigned in the latter part of the year.

**ELECTIONS.** Primary elections were held on June 30 for the nomination of U. S. Senators. Senator P. J. McCumber, a regular Republican, was successful over Thomas Marshall, the insurgent candidate. Senator McCumber made his campaign for renomination in the primaries on the new tariff law. As a member of the Senate Finance Committee, Mr. McCumber assisted

in the framing of the Payne-Aldrich bill and was strongly criticised by the insurgents, who sought to defeat him. He was, however, successful. A candidate to succeed Senator Purcell was also nominated at this election and in this the insurgents won. Representative A. J. Gronna, one of the nine insurgents who voted to depose Speaker Cannon, carried the primaries, and received the nomination. The Democrats renominated for governor John Burke, while the Republican nominee was C. A. Johnson. In the election on November 8 the Democrats succeeded in re-electing Governor Burke. The legislature, however, remains Republican, which insures the election of two Republican Senators in 1911.

**STATE OFFICERS.** Governor, John Burke; Lieutenant-Governor, U. L. Burdick; Secretary of State, P. D. Norton; Treasurer, Gunder Olson; Auditor, D. K. Brightbill; Attorney-General, Andrew Miller; Superintendent of Education, E. J. Taylor; Commissioner of Agriculture, W. C. Gilbrath; Commissioner of Insurance, W. C. Taylor—all Republicans, except Burke, Democrat.

**SUPREME COURT.** Chief Justice, David E. Morgan; Justices, Charles J. Fisk, B. F. Spalding, E. T. Burke, E. B. Goss; Clerk, R. D. Hoskins—all Republicans, except Fisk.

**STATE LEGISLATURE, 1911:** Republicans, Senate, 44; House, 87; joint ballot, 134. Democrats, Senate, 5; House, 13; joint ballot, 18. Republican majority, Senate, 39; House, 74; joint ballot, 113.

**NORTHERN NIGERIA.** A British protectorate in western Africa. Area (official estimate), 255,700 square miles. No census has been taken. A rough estimate from returns obtained during the assessment for tribute gives the native population at 6,714,138; Europeans (1909), 544. Death rate among Europeans, 23.89 per 1000. Mohammedanism prevails among the Fulani, Hansas, and other prominent tribes; the remainder are pagans. Schools are maintained by the missionary societies; Mohammedan schools are attached to the mosques throughout the protectorate. During 1909, 137 convictions were obtained in the courts for offenses against the laws for the suppression of slavery; number of slaves freed (January 1 to December 31, 1909), 1289. Fruits, rubber, kola nuts, cotton (1909, 375 tons), tobacco, capsicums, peanuts, etc., are grown. The main articles of export are forest products collected by the natives and bartered to the Niger and other companies for earthenware, hardware, and cotton goods. The Fulanis in the north are great herdsmen and breed large numbers of horses and cattle. Iron is mined. Large potash deposits are worked in Bornu. There is an extensive proved tin field in Bauchi. As Northern Nigeria possesses no coast line, a large proportion of its imports are consigned to the ports of Lagos and Southern Nigeria. Reliable statistics on the export trade are impossible to procure, as a large proportion is by barter. The Northern Nigeria Customs Department at Lokoja gives the following returns for the year 1909: imports, £113,205; exports £24,573 (tin, £24,145). Idah Station returns: imports, £851,281; exports, £309,742 (tin, £26,871). Tonnage entered at Lokoja (1909), 112,771 (British, 94,387; German, 18,384); cleared, 113,846 (British, 95,478; German, 18,368). Lokoja is situated on the Niger, 250 miles from the delta. The

railway from Barijuko to Zungeru (22 miles) with a 3-mile branch line, cost (including construction of Kaduna Bridge) £41,761. Cost to December 31, 1909, of the Baro-Kano Railway under construction, £967,808. About 1000 miles of road have been constructed by the government. Telegraph lines, 2297 miles. Revenue and expenditure (1908-9), £538,444 and £540,643 respectively (in 1907-8, £508,005 and £498,302). Governor and commander-in-chief, Sir H. Hesketh Bell, with headquarters at Zungeru.

**NORTHWESTERN UNIVERSITY.** An institution of higher learning at Evanston and Chicago, Ill., founded in 1851. The number of students enrolled in the several departments of the university for the year 1910-11 was 4106, while the faculty numbered 395. The university includes the College of Liberal Arts, the College of Engineering, School of Music, Evanston Academy and the School of Oratory. These departments are at Evanston. The Law School, School of Pharmacy, Dental School and the School of Commerce are in Chicago. There were no notable changes in the faculty during the year 1909-10. A new gymnasium, costing \$307,000 was completed during the year. The College of Engineering initiated, at the beginning of the year, a five-year course. The School of Commerce has developed within two years from a few evening classes to an established school with 600 students. Courses for teachers have been instituted in the university, and an extension course in music has been established. Plans are being formulated for dormitories and a commons to be built on the campus at Evanston. The benefactions received during the year include one of \$127,000 for the increase of the plant. The productive investments on June 30, 1910, amounted to \$3,095,417, while the income from investments was \$175,240, and the total income from all sources was \$703,927. The President is A. W. Harris.

**NORWAY.** A constitutional monarchy of northern Europe. Capital, Christiania.

**AREA AND POPULATION.** According to the Statistiske Centralbureau, the land area is 309,986.40 square kilometres; water, 13,000.17; total, 322,986.57 square kilometres, or 124,707 square miles. Population (1900), 2,240,032; estimated, December 31, 1908, 2,352,786; 1909, 2,363,511. Marriages in 1908, 14,150; living births, 60,800 (4100 illegitimate); deaths, 33,100; emigration over-sea, 8497 in 1908, 16,281 in 1909. Christiania had (1900) 227,626 inhabitants (estimated, 1908, 235,674); Bergen, 72,251 (82,200); Trondhjem, 38,180 (42,627); Stavanger, 30,613 (36,200).

**EDUCATION.** Primary education is compulsory. In the towns, during the year 1906, 89,620 children received elementary instruction; in the rural districts, 271,401 (schools, rural, 5961). Secondary schools, 92, with (1906-7) 16,527 pupils; communal and private, 112, with 4048; normal, 10, with 969. The University of Christiania had (1908) 1584 students. The national and only state-endowed church is the evangelical Lutheran. All religions, Jesuitism excepted, are tolerated.

**AGRICULTURE.** Total productive area (1907), 1,112,550 hectares; under crops, 257,663 hectares (oats, 106,279; barley, 35,919; rye, 15,055; wheat, 5020; wheat and rye mixed, 6155; peas, 4163; forage plants, 14,172; potatoes, 41,164; other plants, 8789; fallow, 10,963; gardens, 10,034); pastures, 854,887. Area under forests,

6,841,100 hectares (state 853,000). Production (1907 and 1908): Cereals, 3,928,697 hectolitres, valued at 31,439,900 kronen in 1907; 5,709,130 hectolitres, valued at 47,859,900 kronen in 1908. Potatoes, 5,075,290 hectolitres, 24,385,300 kronen in 1907; 9,877,865 hectolitres, 43,012,600 kronen in 1908. Hay, 2,878,482 metric tons, 143,924,700 kronen in 1907; 3,600,000 tons, 180,000,000 kronen in 1908. Live stock (census of September 30, 1907): horses 172,468; cattle, 1,094,101; sheep, 1,393,488; goats, 296,442; swine, 318,556; reindeer, 142,623.

**FISHERIES.** The number of vessels engaged in cod fishing in 1908 was 20,055; dories, 10,267; numbers of persons engaged, 90,615; catch, 48,329,300; value of catch, 18,118,400 kroner. Herring catch, 1,977,218 hectolitres, value, 6,274,700 kroner; mackerel, 12,579,914, 1,313,700 kroner; whiting, etc., value 7,977,000 kroner; salmon and sea trout, 854,647 kilograms, 1,249,300 kroner; lobsters, 1,203,965, 1,147,100 kroner; oysters, 10,000 kroner. Total value of fisheries products in 1908, 36,090,200 kroner.

**OTHER INDUSTRIES.** Number of persons engaged in mining (1907), 6331; output of all mines, 459,620,000 kilograms; value, 10,834,000 kroner. Persons engaged in the manufacture of finished metal products, 258; output 1,604,800 kilograms, value, 3,135,000 kroner. Number of establishments for the principal manufacturing industries, 4258, employing 102,852 work people.

**COMMERCE.** The imports and exports for four successive years are given in thousands of kroner as follows:

	1905	1906	1907	1908
Expts. Nor. ....	183,920	214,856	219,972	211,248
Expts. For. ....	29,040	31,066	33,129	28,829
Total .....	217,960	245,922	253,101	240,077
Imports .....	312,336	343,524	385,708	376,129

The figures for 1909 are given as follows: imports, 386,617,000 kroner; exports, 264,326,000 kroner. Details of the special trade in 1909 are seen below in thousands of kroner:

Imports	1000 kr.	Exports	100 kr.
Cereals .....	64,300	Animals, etc. ....	84,100
Textiles .....	40,600	Wood, wares .....	42,600
Oils .....	32,600	Timber .....	34,800
Col. prods. ....	31,300	Minerals .....	25,300
Coal .....	30,200	Paper, etc. ....	22,000
Minerals .....	24,700	Skins, etc. ....	15,000
Metal mfrs. ....	21,500	Oils .....	9,000
Skins, etc. ....	17,300	Metals .....	4,400
Metals .....	16,600	Cereals .....	3,400
Yarns .....	11,700	Textiles .....	1,500
Animals, etc. ....	13,400	Misc. ....	16,700

The principal countries of origin and destination with the value of their trade in thousands of kroner, are given as follows:

	Imports from 1908	1909	Exports to 1908	1909
Germany .....	111,583	117,223	37,482	46,565
Great Britain .....	94,400	89,323	91,730	85,145
Sweden .....	41,468	41,687	12,361	16,817
Denmark .....	27,324	19,739	9,606	5,980
Russia .....	26,674	28,484	6,510	9,844
United States .....	18,104	28,306	6,161	18,986
Netherlands .....	16,690	12,878	21,477	8,391
Belgium .....	14,714	12,093	11,090	9,212
France .....	7,271	9,473	11,110	12,401

The merchant marine, January 1, 1909, included 5741 sailing vessels, of 721,905 tons; 1645

steam, of 846,588 tons; 1164 motors, of 9166 tons; making a total of 8550 vessels, of 1,577,650 tons.

Vessels entered (1907) at Norwegian ports, 12,924, of 4,402,461 tons (Norwegian, 6684, of 2,376,711; foreign, 6240, of 2,025,750); cleared, 12,945, of 4,422,323 (Norwegian, 6689, of 2,405,365; foreign, 2,016,958).

COMMUNICATIONS. Total length of railway lines, June 30, 1909, 2859 kilometres (1776.5 miles), of which 2429 kilometres were owned by the state. Receipts (total) from April 1, 1908, to June 30, 1909, 26,785,732 kroner; expenditure, 19,970,800. Length of roads in 1905, 29,692 kilometres; in 1850, 16,091. The state telegraph and telephone lines (officially reported together) had a total length, March 31, 1909, of 18,760 kilometres (11,656.9 miles); wires, 131,807 kilometres; stations, 1052; receipts, year ending March 31, 1909, 4,892,039 kroner; expenditure, 3,488,000. Number of post-offices, 3307; receipts (1908), 7,437,196 kroner; expenditure, 6,576,926.

FINANCE. The unit of value is the krone, worth 26.8 cents. Revenue and expenditure for four successive years may be seen in the following table (in thousands of kroner):

	1905-6	1906-7	1907-8	1908-9*
Revenue .....	100,081	114,209	114,937	144,588
Expenditure .....	98,715	109,800	108,118	137,459

\* From April 1, 1908, to June 30, 1909; the other years are to March 31.

Details of 1908-9 budget below:

Rev.	1000 kr.	Exps.	1000 kr.
Customs .....	53,412	Pub. works .....	40,589
Direct taxes ....	7,198	Finance .....	27,095
Indirect taxes ....	15,716	Defense .....	23,959
Domains .....	3,113	Instruction .....	15,024
From capital .....	4,601	Justice .....	10,101
Posts, tels. ....	15,232	Agriculture .....	3,288
Railways .....	23,168	Council, etc. ....	2,260
Instruction .....	4,425	Commerce, etc. ....	1,741
Various .....	7,495	For. Affairs .....	1,091
		Civil list .....	946
Total Ord. ....	134,360	Storthing .....	725
Extraord. ....	10,228	Various .....	288
Total .....	144,588	Total Ord. ....	127,107
		Extraord. ....	10,351
		Total .....	137,458

The national debt stood, June 30, 1909, at 329,304,529 kroner. The new financial year began July 1, 1909, instead of April 1 as formerly.

The Norges Bank (state) had, at the end of 1908, assets, 115,300,411 kroner; liabilities, 86,398,965. The Kongeriget Norges Hypothekbank (also state) had capital 20,500,000 kroner; reserve, 1,000,000; delcredere fund, 300,000; bonds, 157,756,200; loans on mortgage, 168,830,516. Savings banks, 469; depositors, 908,004; deposits, 452,060,991 kroner.

ARMY. The Norwegian army is a national militia organized on a skeleton or cadre basis according to the terms of legislation passed by the Storthing in 1909. Service is obligatory and begins with the *ligne* in which a recruit serves the required amount of military duty required for 12 years. Then he passes to the *Landvaern* for 8 years and finally to the *Landsturm* until he is 50 years. The reorganization provided for more rapid mobilization so that a force of 70,000 could be raised while the military force available for service beyond the frontiers would be 30,000. The regiment is the unit of organization and in times of peace is made up by various classes of recruits serving for 72 days annually

in the case of infantry and 126 days for the artillery. The organization is in five brigades, and in 1910 the permanent staff maintained amounted to 8344 officers and men.

NAVY. The navy in 1909 consisted of 4 armored coast-defense vessels, of 14,720 tons; 2 protected cruisers, of 3500; 4 gunboats; 36 torpedo boats; 1 destroyer; 1 submarine; besides transports, schoolships, and obsolete gunboats. There are in active service about 130 officers; in the reserve, 150; and about 1000 petty officers and men permanently in the service. Between seven and eight hundred conscripts are required to go into training for six months.

GOVERNMENT. Norway is a constitutional monarchy, the executive being vested in the king, acting through a council of state. The legislative power rests in the representative Storthing composed of the Lakthing and the Odelsting. Woman suffrage has obtained since 1907. Haakon VII, the present king, was born August 3, 1872; married (1896) to Princess Maud of Great Britain; elected king of Norway, November 18, 1905. Heir-apparent, Prince Olav, born July 2, 1903. The council as constituted February 1, 1910, was composed as follows: Premier and Minister of State, W. Konow; Foreign Affairs, J. Irgens; Worship and Instruction, J. Qvigstad; Justice, H. Scheel; Commerce, Navigation and Industry, B. Braenne; Agriculture, B. Holtsmark; Public Works, H. Darre-Jenssen; Finance, A. Berge; Defense, Col. S. Bull.

#### HISTORY

NEW MINISTRY. The Storthing assembled on January 11, but several weeks passed before it began business, owing to the large number of doubtful election returns. On January 27, the Knudsen Ministry, which had been defeated in the elections, resigned and M. Konow formed a new Ministry. The latter had played an active part in the politics of the Left in the decade from 1880 to 1890, but had not been prominent in political affairs except occasionally since that time. Although there were 42 Conservatives in the Storthing and only 21 Liberals the new Ministry comprised 5 Liberal and 4 Conservative members. Among the Liberal Ministers were parliamentary veterans such as M. Arctander, Minister of Commerce, and M. Berge, Minister of Finance. Among the Conservatives, M. Boenne, Minister of Public Works, had previously served as a deputy. The Ministry had been formed, however, as the result of conferences with the Conservative chief, M. Bratlie, and collaboration between the two parties was hoped for.

PARLIAMENTARY SESSION. A new Ministry was added to the Cabinet, that of Agriculture, and M. Holtsmark was appointed to the office. During the first session of the Storthing in 1910, the question of adjournment which had been agitated for a long time was finally settled. At one time there had been a marked disagreement between the political groups in the Storthing as to the duration of the session, the Right being strongly opposed to prolonging the Parliamentary session, while the Left, believing in the concentration of power in that Chamber, desired longer sessions in order to control, so far as possible, all the acts of government; but after the separation from Sweden, the Left showed a tendency to confine its attention to the voting of the budget and to the determination of general lines of policy, leaving the Ministry to deal with the details of current business. It was there-

fore possible to agree on the rules for expediting parliamentary business and a number of such rules were put into effect. A change was also made in the method of paying the salaries of members, which had hitherto been a per diem allowance of 12 kroner. By the law of March 9, 1910, this was altered to a regular salary of 3000 kroner a year, thus making it of no pecuniary advantage to members to prolong the session. This law was carried by a vote of 97 to 24, the majority comprising not only the coalition of the government parties, but also a considerable part of the Left. It was opposed by the Socialists and Radicals. Several laws were passed dealing with economic problems, among which was the new law concerning trade marks, aiming to give the purchaser of an article redress against misrepresentations as to its source or maker; a law applying to artistic models the same rules that deal with industrial inventions; changes in the patent laws for the protection of the inventor; a law regulating stock companies for the purpose of protecting the stockholder against deception and misuse of funds. The last-named law required that henceforth stockholders should be kept fully informed as to the operations of the companies and that the entire capital should be subscribed before the company was definitely established. The rules were somewhat relaxed in regard to banking and insurance companies, but they, on the other hand, were required to have a reserve capital, and provisions were made for preventing the declaration of fictitious dividends and for the protection of the interests of the minority of the stockholders.

The commission appointed to frame rules concerning property rights in mountain lands, continued its important work. The higher mountain lands, in general, belonged to the state, the lower to the local communities, but the limits had never been precisely fixed. The work of the commission was aimed at solving some of the difficult problems that this confused condition had occasioned, and as a result of which it was expected that the property rights throughout the greater part of the country would be placed on a firm basis. A new step was taken in the advancement of the cause of woman suffrage. Down to 1910 woman voters were subject to a property qualification of 300 or 400 kroner at all elections, while among men the suffrage was universal. This arose from the desire to proceed cautiously in granting the suffrage to an inexperienced class of voters. But it was thought that the time had now come for removing this discrimination and a law was passed and signed by the government on June 7, 1910, abolishing this property qualification for the communal elections. It was still retained, however, for the legislative elections. The Minister of Commerce, M. Arctander, tried to persuade the King not to promulgate the law. This was not in accord with the desire of his colleagues or the majority in the Storting. Accordingly he resigned, and was succeeded by M. Braenne, former Minister of Public Works, who in turn was succeeded by M. Darre-Jensen. As to foreign affairs nothing of importance happened during the session, but measures were taken to ascertain the rights of Norway over the Arctic Island of Spitzbergen, which had recently become of economic importance, owing to the discovery of coal mines and to the increase in the whale and seal fisheries. Representatives of the three Powers of the North, Russia, Sweden and Norway, conducted negotia-

tions on this question at Christiania during the months of July and August.

**NORWEGIAN MARSH LANDS.** See DRAINAGE.

**NOVA SCOTIA.** A maritime province of Canada. Capital, Halifax. Area, 21,428 square miles. Population (1901), 459,574. For details, see CANADA. The government consists of the Lieutenant-Governor, appointed by the Governor-General of Canada, the Executive Council (responsible ministry), and a legislature of two houses, the Legislative Council (21 appointed members) and the Legislative Assembly (38 elected members). In 1910, Lieutenant-Governor, James Drummond McGregor; Premier, George Murray.

**NOVAYA ZEMLYA.** See POLAR RESEARCH.

**NOVICOW, M.** See LANGUAGE, INTERNATIONAL.

**NOYES, ALFRED.** See LITERATURE, ENGLISH AND AMERICAN, *Poetry and Drama*.

**NUTRITION.** See FOOD AND NUTRITION.

**NUTT, ALFRED TRUBNER.** An English scholar and publisher, died by drowning, in May, 1910. He was born in London in 1856, and was educated at the University College School and in France. After leaving school in 1874 he served three years' apprenticeship in Leipzig, Berlin and Paris. In 1878 he joined his father's publishing business and in the same year became a member of the Folk-Lore Society, in which he was elected to the council in 1881, and as president, 1897. He was also a member of several other philological societies and in 1898 was joint founder of the Irish Texts Society. Mr. Nutt first recognized and gave publication to the poems of W. E. Henley. Among his notable achievements as a publisher were the initiation of the "Tudor Translations," the "Tudor Library," the "Northern Library of Old Norse Texts," and other series. His chief interest as a scholar was in Celtic legend and folk-lore, in which he was a leading authority and an extensive writer. Among his published works are: *The Legend of the Holy Grail with especial Reference to the Hypothesis of its Celtic Origin* (1888) and a volume of essays on Celtic Sagas and other subjects, entitled *The Voyage of Bran, Son of Febal, and The Land of the Living* (2 vols. 1895-97).

**NYASSALAND PROTECTORATE.** A dependency of Great Britain, lying around the shores of Lake Nyassa and including the Shire Highlands and the greater portion of the Shire River Basin. Area, 43,608 square miles; population (1909 estimate), 594 Europeans (mostly in the Shire province), 457 Asiatics, and about 996,166 natives. Capital, Zomba; chief town, Blantyre, with about 200 Europeans and 6000 natives. Mission schools, 1051, with 99 European teachers and 84,000 pupils. The chief products and exports are coffee (export 1908-9, 934,896 pounds; 1907-8, 780,133); tobacco (export, 1908-9, 570,102 pounds; 1907-8, 554,395); cotton (crop 1908-9, 756,120 pounds; 1907-8, 403,486); tea (crop 1908, 23,948; 1907, 5600). Livestock: 54,581 cattle, 18,796 sheep, 102,357 goats, 9943 swine. Imports in 1909-10, exclusive of transit, £112,629 (£140,916 in 1908-9); exports, £110,866 (£122,644); revenue, 103,032 (£80,534); expenditure, £108,728 (£76,647); grant-in-aid, £30,000 (£15,000). A railway (113 miles) connects Port Herald with Blantyre, and is to extend to Lake Nyassa via Zomba. Telegraph lines connect with the Cape, Chinde, and

Quilemane. The African Trans-Continental Telegraph Company's line has been extended to Ujiji on Lake Tanganyika. Steamers ply the lake and the rivers. Good roads are building in all directions, and life and property are effectively safeguarded. A governor, who is also commander-in-chief of the military forces (1910, Sir Alfred Sharpe), administers the country under the control (since April 1, 1904) of the Colonial Office.

**OAKLAND, CAL.** See INITIATIVE AND REFERENDUM.

**OATS.** Although weather conditions were more or less unfavorable in the more important oats-producing countries, the world's crop in 1910 ranked second to the largest crop ever produced. The following table gives the world's production in 1909 and 1910:

WORLD'S OATS PRODUCTION IN 1909 AND 1910

Countries	1909	1910
	<i>Bushels.</i>	<i>Bushels.</i>
United States .....	1,007,434,440	1,126,855,990
Canada .....	375,587,680	343,692,425
Germany .....	628,768,720	544,335,900
Austria .....	171,953,870	142,013,670
Bulgaria .....	9,356,080	13,194,350
Denmark .....	50,275,875	46,105,120
Spain .....	34,309,420	29,020,890
France .....	383,173,570	358,954,550
Great Britain and Ireland .....	217,853,145	216,759,935
Hungary (incl. Croatia and Slavonia) .....	98,651,340	82,932,865
Italy .....	43,405,620	28,576,965
Luxemburg .....	3,587,190	3,509,215
Norway .....	10,260,840	11,971,860
Netherlands .....	21,136,650	20,359,030
Rumania .....	27,795,370	30,521,260
Russia .....	1,172,981,760	1,047,320,375
Sweden .....	80,804,790	88,781,865
Japan .....	5,067,300	2,387,385
Algeria .....	10,674,240	13,259,500
Tunis .....	5,443,100	5,374,200
Argentina .....	40,651,000	('09-'10)
Chile .....	2,425,280	('09-'10)
New Zealand .....	9,750,790	('09-'10)

The above figures, taken from the Bulletin of Agricultural Statistics, International Institute of Agriculture Rome, are final for Germany, Spain, Hungary, Italy, Canada and the U. S., and preliminary for all other countries.

The total production was estimated at about 4,000,000,000 bushels as compared with 4,295,000,000 bushels in 1909, the record year. The United States led the world in total yield and also produced its largest crop on record. The oat crop of Russian ranked second only to the record crop of 1909.

The growing oat crop of the United States in 1910 was affected by dry weather conditions of two seasons. The fall and winter of 1909 had been dry and the soil moisture reserves had been reduced. The following spring supplied sufficient moisture for a timely germination of the seed and a good early growth but later on in the season, when the rainfall became inadequate, the moisture supply of the soil was soon exhausted and the crop suffered. However, unusually good crops in certain States enjoying more favorable weather conditions more than discounted the crop shortage in drouth-stricken regions and a record crop was secured. The total production was 1,126,765,000 bushels produced on 35,288,000 acres, the average yield per acre being 31.9 bushels, the highest acre yield since 1905. In 1909, the only other year in which the country's yield was more than a billion bushels, the production amounted to 1,007,353,000 bushels and the average yield per acre to 30.3 bushels. Owing to a fall in price the

farm value of the crop in 1910 on December 1 was only \$384,716,000 as compared with \$408,174,000 in 1909. The States leading in the production of oats in 1910 were as follows: Iowa produced 181,440,000 bushels on 4,800,000 acres; Illinois 171,000,000 bushels on 4,500,000 acres; Minnesota, 78,523,000 bushels on 2,736,000 acres; Nebraska 74,220,000 bushels on 2,650,000 acres; Wisconsin 69,136,000 bushels on 2,320,000 acres; Ohio 65,658,000 bushels on 1,765,000 acres; and Indiana 65,490,000 bushels on 1,850,000 acres. In North Dakota where the crop suffered most from drouth the average yield per acre was only 7 bushels. The Secretary of Agriculture points out that the share of the oat crop produced by the North Atlantic States has declined since 1889 from 10.8 to 8.6 per cent.; of the South Atlantic States from 2.9 to 2 per cent.; of the North Central States from 79.7 to 77.2 per cent.; and that the share of the South Central States has risen from 4.7 to 6.5 per cent.; and of the Western States from 1.9 to 5.7 per cent. Oats have been high in price during several years of short crops but the large yield of 1910 caused a marked reduction in the bushel value. December 1, 1909, the farm value per bushel was 40.5 cents and December 1, 1910, it was 34.1 cents.

**OBALDÍA, JOSÉ DOMINGO DE.** President of the Republic of Panama, died March 1, 1910. He was born in 1845, son of the President of Colombia. He studied at the Institute de Christo at Bogotá, and completed his education in the United States, studying at French's School in New Haven and subsequently in New York. In 1903 he was made governor of the Colombian province of Panama, and when the district declared its independence he was elected its second vice-president. In 1904 he was appointed Minister to the United States. He returned to Panama in 1908 and served as acting president in the absence of President Amador in Europe. While in office he removed certain officials whom he charged with dishonesty in office, and enforced the reimbursement of the government for money taken by them. When President Amador returned he restored the officials whom Obaldía had removed, and this incident became the issue in the next election. Obaldía's affiliations were Conservative, but he was also placed at the head of the Liberal ticket. His opponent, Señor Arias, withdrew prior to the election, and Obaldía's election was unanimous. He was a man of wealth and owned ranches in Panama and had interests in Costa Rica and other Spanish-American countries.

**OBERLIN COLLEGE.** An institution of higher learning at Oberlin, O., founded in 1833. The total number of students enrolled in the several departments of the college in 1909-10 was 1993, divided as follows: College, 982; Theological Seminary, 56; Conservatory of Music, 483; Academy, 356; Drawing and Painting, 72; Summer Session, 44. The faculty, including officers of administration, numbered 141. President King returned to the college after a year's leave of absence for study and travel in Asia, and Professor F. S. McLennen of the department of philosophy returned after a year's leave of absence for study in Europe and the United States. Professor Frederick O. Grover, professor of botany, returned from a year's leave of absence of study and travel in Europe. Professor E. B. Branson of the department of geology, resigned to accept a similar position

in the University of Missouri. Dr. Samuel H. Robinson became head of the department of physics. Dr. Carl E. Geiser received permanent appointment as head of the department of political science. During the year \$50,000 was received from the estate of John Stewart Kennedy. The productive funds of the college in 1909-10 amounted to \$1,842,590 and the income amounts to about \$90,000 annually. The president is Henry Churchill King.

**O'BRIEN, R. B.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**OCEANIA, FRENCH.** See FRENCH ESTABLISHMENTS; also ANTHROPOLOGY.

**OCCUPATIONAL DISEASES, NEED OF LEGISLATION IN THE UNITED STATES.** This subject received conspicuous attention during the year. Largely as the result of the efforts of the American Association for Labor Legislation various investigations were carried on and public sentiment to support advanced legislation was developed. As in the matter of compensation for industrial accidents, the United States is many years behind the best legislation of Europe on the proper safe-guarding of the health of the workers in occupations especially conducive to disease and physical deterioration. It is believed that, although such diseases are less obvious than industrial accidents, they result in greater loss of life and economic power. Nevertheless, although very elaborate legislation on employers' liability and workmen's compensation has been worked out little or nothing has been done with respect to this even more important subject.

**PHOSPHORUS POISONING.** The Association, in coöperating with the United States Bureau of Labor, completed an investigation into phosphorus poisoning in match factories. The results are published in *Bulletin No. 86* of the Bureau. Phosphorus poisoning results in the loathsome disease known as phosphorus necrosis or "phossy jaw," which eats away the bone tissues causing frightful disfigurement. The investigation covered fifteen factories, in which eighty-two cases of poisoning and records of more than one hundred others were found. Sixty-five per cent. of all the employees of these factories were found working under conditions exposing them to fumes of phosphorus and to the danger of poisoning, ninety-five per cent. of all women and eighty-three per cent. of all children employed were thus exposed. This exposure to a dreadful disease is no longer necessary owing to the discovery of a harmless substitute for phosphorus in match making. Through the efforts of the International Association for Labor Legislation the leading countries of Europe, including Germany, France, Great Britain, and Scandinavia had entered into treaties to prohibit the manufacture, importation, and sale of matches made from poisonous phosphorus. On the basis of the above investigation a bill was introduced in Congress in June by Representative Esch of Wisconsin, prohibiting the transportation in interstate commerce of matches made from white or poisonous phosphorus. Most of the principal manufacturers of the county signified their entire willingness to accept the provisions of the bill. In the August report of the Diamond Match Company attention of the stockholders was called to the impending legislation. It was also stated that the company was making preparations for the use of the harmless substitute for white phos-

phorus and that in all probability "before the proposed legislation is enacted the company will have succeeded in producing a satisfactory match without being required to use poisonous forms of phosphorus."

**WORK OF INVESTIGATION.** On June 10, was held in Chicago a Conference on Industrial Diseases. This was called by the Commission on Industrial Hygiene of the Association for Labor Legislation. It was attended by representatives of State commissions, manufacturers' organizations, and trade unions, as well as by persons interested in progressive social legislation. The Conference appointed a committee of five to urge upon the President of the United States the necessity of a national inquiry into this subject. Governor Deneen of Illinois appointed a commission of nine members, of which Professor Charles R. Henderson of the University of Chicago was made secretary, to investigate industrial disease in that State. This is the first such State commission in the United States. The legislature appropriated \$16,000 for this investigation. Both American and European experts were secured, either as advisers or direct investigators, and efforts were concentrated on the subject of lead poisoning. Some attention was to be given also to caisson disease, bisulphide poisoning and the effects of gases in metal works. The commission planned to investigate the shops and factories, the death records of trade unions, mutual benefit societies, coroners and hospitals; and to take the testimony of employers, workmen, and physicians. It was to report in January, 1911.

Perhaps the most thoroughgoing study of this subject is the English treatise on *Diseases of Occupation*, by Sir Thomas Oliver. In this, the subject is classified under the following heads: (1) diseases due to gases, vapors, and high temperatures; (2) diseases due to increased or decreased atmospheric pressure; (3) diseases due to metallic poisons, dust, and fumes; (4) diseases due to organic and inorganic dust and heated atmospheres; and (5) diseases due to fatigue. Mr. John B. Andrews, Secretary of the American Association for Labor Legislation, declared that a great deal of the modern labor problem is a health problem. He said, in briefly classifying occupational diseases, that there is a long list of diseases occasioned by the breathing of impure air; a second group due mainly to extremes or rapid variation in temperature; a third class due to humidity; and a fourth due to over fatigue.

The second meeting of the Permanent International Commission for the Study of Diseases of Occupation met at Brussels, Belgium, September 10-14. This commission is composed mainly of physicians, members of public health boards, factory inspectors, economists, and social workers of the United States and principal European countries. Its membership combines expert scientific medical and chemical knowledge with intimate knowledge of industrial facts. The topics for discussion included lead, mercury, and white phosphorus as industrial poisons, temperature and dust in factories, work under compressed air, effects of fatigue and overwork, and conditions of special trades. The secretary of the American section is William C. Hanson, M. D., State Board of Health, Boston, Mass. The next session is to meet at Vienna in 1912.

**OGILVY, J. S.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**OHIO.** One of the East North Central Division of the United States. Its area is 41,040 square miles. Its capital is Columbus.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 4,767,121 as compared with 4,157,545 in 1900 and 3,672,329 in 1890. The increase in the decade from 1900 to 1910 was 14.7 per cent. The State ranks fourth in point of population, the same relative rank which it held in 1900. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** Ohio ranks fourth among the States in the production of coal. It is surpassed by Pennsylvania, West Virginia, and Illinois. The coal production in 1909 was 27,919,861 short tons, as compared with a production in 1908 of 26,270,639. According to the estimates of the United States Geological Survey, the production of 1910 increased between three million and four million tons over 1909, reaching a total of approximately 31,500,000 short tons. This is the first year in which the production of coal in the State has exceeded 30,000,000 tons. This was due chiefly to the long continued idleness in the fields west of the State. The marked curtailment of the Illinois output, which normally goes to Chicago and the northwest, created a demand for coal in Ohio, which was not affected by the strike to the same extent as Illinois. The prices for Ohio coal ranged during the year from 25 to 35 cents a ton higher than in 1909. The only strike of any importance during the year was one of eight months' duration in the Crooksdale and in the Goshen or middle Ohio district. This brought increased demands on the Hocking Valley district, which increased the production fully 25 per cent. during the year. The State is an important producer of petroleum. The production in 1909 was 10,632,793 barrels. Of these 5,915,357 barrels came from the Lima field and 4,717,069 barrels from the southeastern part of the State. The Lima field has shown a decline in recent years. The production of that field in 1908 was 6,748,676 barrels. The southeastern fields, on the other hand, showed an increased production. There were produced in 1908 in these fields 4,109,935 barrels. The value of the product in 1909 was \$13,225,377 as compared with a value of \$14,178,502 for the product of 1908. There were in the State at the close of 1909 2280 wells. The production in 1910 according to the estimates of the United States Geological Survey showed a decrease from the previous years in the total production, due largely to the desire to invest in the newer ventures of Illinois. The cement industry of the State is important. There were produced in 1909 1,770,900 barrels valued at \$1,329,547 as compared with 1,521,764 valued at \$1,305,210 in 1908. The State ranks first in the value of its clay products. These in 1908, the latest year for which statistics are available, were valued at \$26,622,490. In the production of salt Ohio ranks third, being surpassed only by Michigan and New York. In 1908 there were produced 3,427,478 barrels, valued at \$864,710. Ohio is second only to Pennsylvania in the production of pig iron. The amount produced in 1908 was 2,861,325 long tons. Other important mineral products were grindstone, coal products, building stone, natural cement, and metallic paints.

**AGRICULTURE.** The acreage, production, and

value of leading crops in 1909 and 1910 are given in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	3,960,000	144,540,000	\$66,488,000
1909.....	8,875,000	153,052,000	85,715,000
Wm.wheat, 1910	1,944,000	31,493,000	28,344,000
1909	1,480,000	23,532,000	26,056,000
Oats, 1910.....	1,765,000	65,658,000	22,980,000
1909.....	1,730,000	56,225,000	23,052,000
Rye, 1910.....	56,000	924,000	665,000
1909.....	57,000	980,000	745,000
Barley, 1910....	31,000	884,000	530,000
1909.....	32,000	829,000	506,000
Buckwheat, 1910	14,000	252,000	189,000
1909	15,000	318,000	248,000
Potatoes, 1910..	182,000	14,924,000	7,611,000
1909..	182,000	16,926,000	9,479,000
Hay, 1910.....	2,840,000	3,948,000a	49,350,000
1909.....	2,820,000	4,033,000	43,960,000
Tobacco, 1910..	92,700	75,087,000b	6,382,395
1909...	90,000	83,250,000	8,741,250

a Tons. b Pounds.

**EDUCATION.** The school population of the State, according to the enumeration in 1910, was 1,227,127. The enrollment for the year was 838,080 and the average daily attendance was 648,544. There were about 1000 high schools in the State. The average monthly salary in the township elementary schools was: for men, \$46; for women, \$45; in the high schools, for men, \$83; for women, \$59; in other districts, city, village, special, and elementary schools, for men, \$56; for women, \$46; in the special high schools, men \$87; women, \$66. The total expenditures for education during the year amounted to \$27,328,460.

**FINANCE.** The report of the State treasurer for the fiscal year ending November 15, 1910, showed a balance at the beginning of the year of \$4,170,880. The total receipts of the year were \$11,567,122, and the total expenditures were \$12,074,835, leaving a balance at the close of the year of \$3,363,167. The school fund of the State amounted to \$2,559,781, the sinking fund to \$610,643, and the university fund to \$770,500.

**CHARITIES AND CORRECTIONS.** The charitable and correctional institutions under State control, and their populations on November 15, 1910, are as follows: Athens State Hospital, 1328; Cleveland State Hospital, 1523; Columbus State Hospital, 1700; Dayton State Hospital, 1167; Longview Hospital, 1322; Massillon State Hospital, 1630; Toledo State Hospital, 1874; Ohio Hospital for Epileptics, 1433; Home for Soldiers' Widows, Army Nurses, etc., 38; Soldiers' and Sailors' Home, 1460; Soldiers' and Sailors' Orphans' Home, 677; State School for the Blind, 263; State School for the Deaf, 451; Institution for Feeble-Minded, 1570; Ohio Penitentiary, 1570; State Reformatory, 885; Boys' Industrial School, 1180; Girls' Industrial School, 547; Total, 20,618.

The most noteworthy change in legislation relating to charities and corrections made by the last legislature was the passage of what is commonly called the "pay patient law." By this law the patients admitted after the enactment of the measure will be supported as far as possible by relatives, guardians, and friends. The amount to be paid for their support is to be determined by the Board of State Charities. The amount shall not be greater than the average gross per capita cost of the preceding year. The Board is to appoint an agent to investigate the financial condition of inmates now in these institutions or hereafter committed and of the

relatives liable for their support in order to determine the ability of any inmate or relative to make payment in whole or in part for the support of the inmate. In case the estate of the inmate is sufficient for his or her support and no guardian has been appointed for such estate, the agent shall petition the probate court of the proper county to appoint a guardian. By the provisions of this act a husband may be held liable for the support of a wife while an inmate of any of these institutions, a wife for a husband, a father or mother for a son or a daughter, and a son or daughter or both for a father or mother. This act does not apply to honorably discharged soldiers or sailors of the United States who are inmates of these institutions. This law proved very satisfactory during 1910, though it will probably require two years before the whole population of the institutions affected by the act have been investigated and matters adjusted among the relatives and guardians.

#### POLITICS AND GOVERNMENT

The State legislature met in 1910 and the principal measures passed will be found noted in the section on *Legislation* below. Governor Harmon in his annual message to the legislature recommended the ratification of the income tax amendment to the constitution. The amendment was, however, never reported out of committee.

**CONVENTIONS AND ELECTIONS.** The campaign and the election of 1910 were of unusual national interest in Ohio as the State's attitude toward President Taft's administration was of great interest throughout the country. In 1908 the State elected a Democratic governor, while at the same time giving President Taft a majority of about 70,000 votes. This was due largely to factional disputes in the Republican party and to the powerful personality of Judson Harmon, the Democratic candidate for governor. Governor Harmon has in the past few years been frequently spoken of as a possible presidential candidate, and it was assumed that if he were able to carry the State in 1910 he would be one of the most prominent Democratic candidates for the presidency in 1912. He had no opposition for renomination. The Republican party, on the other hand, was divided by factional differences as it has been for several years. These disputes were largely over local issues and resulted in an effort for control by contending elements of the party. The progressive wing, although not so conspicuous in Ohio as in many other mid-western States, was strong enough to present a formidable front to the regular machine leaders, headed by George B. Cox of Cincinnati, who has been for several years the leader of the Republican political machine. The leaders of the progressive element numbered James R. Garfield, Secretary of the Interior in President Taft's Cabinet.

The Democratic State Convention met at Dayton, on June 22. Governor Harmon was renominated by acclamation and a resolution was adopted declaring him to be the choice of the Democrats of Ohio for President in 1912. The platform adopted by the convention reviewed the administration of Governor Harmon and declared that his administration had been one of the best ever enjoyed by the State. The platform favored the ratification of the income tax amendment to the Federal constitution. It called for election of United States Senators by

direct vote of the people and pledged the Democratic legislature to take the necessary action looking to a convention of the States to adopt the constitutional amendment required. It favored the application of business methods to the administration of the Federal government and demanded a revision of the present tariff, reducing rates so as to lower the prices imposed on consumers. It also favored the immediate enactment of a dollar a day pension bill introduced into the 60th and 61st Congresses by an Ohio Representative, General Isaac R. Sherwood. The convention nominated for lieutenant-governor, Atlee Pomerene.

The Republican State Convention was held on July 26 and 27. Among the candidates for nomination for governor were Representative Longworth, James R. Garfield, Judge O. B. Brown, and Warren G. Harding. Judge Brown was the favorite candidate of the State machine headed by George B. Cox. Mr. Garfield represented the progressive element and he urged before the convention that the platform approve several projects of progressive legislation. On the first day of the convention, the candidate for the chairmanship of the platform committee, supported by Mr. Garfield, was defeated by a vote of 15 to 3. Representative Longworth was chosen temporary chairman at the first day's session and he made an address in which he strongly praised President Taft and his administration. The permanent chairman of the convention was Senator Theodore E. Burton, who, in his address of acceptance, defended the tariff and the recent legislation and praised the legislation passed by Congress. For the nomination for governor three ballots were required. On the first ballot a large number of votes was cast for Warren G. Harding, who had 485, Judge Brown had 413, Mr. Longworth 92, and Mr. Garfield, 73. On the second ballot Mr. Harding had 497, Judge Brown 363, and Mr. Longworth 164. On the third ballot Mr. Cox threw his support from Judge Brown to Mr. Harding and this resulted in the latter's nomination with 746 votes, 534 being necessary for a choice. Mr. Harding is editor of a newspaper at Marion, was lieutenant-governor in 1904-06 and had long taken an active part in State politics. The convention passed a resolution endorsing the administration of President Taft and calling for his renomination. It reviewed the most important enactments of the administration and declared the record of its achievement and of that of the 61st congress unequalled in the history of the government. The platform favored such amendment to the anti-trust law as official judicial interpretation proves to be necessary for the proper regulation of monopolies. It commended the action of Congress in the creation of a commission to investigate the question of employers' liability laws, and workmen's compensation acts. It demanded the enforcement of existing laws and the enactment of new laws for the protection, wise use and conservation of all the natural resources under the control of the Federal government. It favored legislation for the revival of the merchant marine, an adequate navy, arbitration for the settlement of international disputes, publicity for campaign funds and ratification of the income tax amendment. Certain planks advocated by Mr. Garfield and others asking for the recall and for ballot reform, for the enlargement of the powers of the tariff board, and for measures to check

the influence of special interests were omitted from the platform. The campaign which followed the nomination was aggressive from its beginning. In the last weeks, four cabinet officers, Secretaries Knox, MacVeagh, Wilson, and Attorney-General Wickersham made speeches in the State urging the people to support the President by carrying his own State for the Republican party. Secretary Knox highly commended the new tariff law, declaring it the wisest and broadest measure for practical reciprocity ever enacted. Secretary MacVeagh spoke of it as the first legislative step in the progress of actual revision and declared that the President was the leader of this movement for tariff reform. Ex-President Roosevelt also made several speeches in the State and in the course of these made sharp attacks on Governor Harmon, declaring that as a receiver of a bankrupt railroad he had approved the indirect payment of rebates. He also asserted that Governor Harmon had wished to indict Paul Morton in the Atchison rebate cases without having any evidence against him. Governor Harmon was at that time Attorney-General of the United States under President Cleveland. Governor Harmon replied to these assertions with a general denial. The election on November 8 resulted in the reelection of Governor Harmon by a plurality of 100,377 votes. The total vote cast was for Harmon, 477,077, and for Harding, 376,700. The Democrats elected the entire State ticket. A Democratic State legislature was also elected with a majority on joint ballot of 35. This ensures the election of a Democratic Senator to succeed Senator Dick, whose term expires in 1911.

**OTHER EVENTS.** On February 17 at a referendum election held in Cleveland the so-called Taylor street railroad grant was approved by a majority of 8110 in a total vote of 46,504. This franchise had been proposed by Judge Robert W. Taylor of the Federal district court, with headquarters in Cleveland, and had been passed by the city council December 18 during the last days of the Tom L. Johnson administration. The distinctive feature of the ordinance is that it proposes to furnish the public transportation service at bare cost, plus a 6 per cent. return to stockholders, and no more. A sliding scale of fare is arranged, starting with a flat 3 cent fare, though transfers instead of being free are sold at 1 cent each. The ordinance went into effect on March 1 and the initial rate of fare was to continue for a trial period of eight months. Long before the expiration of the eight months, however, it was seen that the success of the experiment was such that the low fare would continue for an indefinite period longer. Under no condition is the railroad company permitted to charge more than four cents cash fare or seven tickets for a quarter. The city council retains a close supervision of the financing and operation of the road. The city has the right to purchase the lines at the end of the 25 year grant, if the State law then permits. A street railway commissioner acts as adviser to the city. His salary of \$12,000 and the additional \$28,000 a year which the ordinance permits him to spend for the expenses of his office the company is required to pay. Gerhard M. Dahl, a Cleveland lawyer, was appointed the first commissioner. Judge Taylor died suddenly on November 26.

On July 8, a mob of 500 citizens broke into

the county jail in the city of Newark and took from it a prisoner named Carl Etherington and hanged him in the county courthouse square. Etherington was one of a party of detectives employed by the Anti-Saloon League, who had made a raid upon a beer saloon occupied by a former chief of police of the city named Howard. While they were in the saloon Howard was shot by Etherington who asserted that he had acted in self defense. The officers were engaged in looking for cases of violation of the law against the sale of liquor, which is forbidden in Newark. The officials of the Anti-Saloon League declared that the mob was allowed to lynch Etherington because of the cowardice of the mayor and the weakness of the police. On July 10 Governor Harmon went in person to Newark and inspected the jail. After questioning the officials of the city he suspended the mayor on the following day. Residents of the city promptly filed charges of neglect of duty against the sheriff of the county. A new mayor was appointed and he removed the chief of police and captain of police for failure to enforce the liquor laws. The sheriff resigned his office as did the mayor, Herbert Atherton, thus avoiding a trial for neglect of duty. Fifteen men who took part in the lynching were arrested and warrants were served on thirty-five saloon keepers for violating the law. On August 10 a grand jury returned forty indictments in connection with the lynching of Etherington. Among those indicted were several of the most conspicuous politicians of the city.

For an account of the street car strikes and the accompanying riots in Columbus during the summer of 1910, see the article **STRIKES**.

Charges of wholesale fraud in the elections on November 8 in Adams and Hamilton counties were made in December and as a result several thousand citizens were indicted by grand juries for corrupt practices.

On December 21 Cincinnati was visited by one of the most disastrous fires in the history of the city. The scene of the fire was the factory district and the factories burned included shoe factories, leather concerns, and safe and lock factories. The total loss was \$1,500,000 and about 1500 persons were thrown out of work.

**LEGISLATION.** Among the important measures enacted at the legislative session of 1910 were the following: Measures were passed providing for agricultural education in the State, and permitting county commissioners to cause marshy lands to be drained and reclaimed for agricultural purposes. Several important measures were passed relating to banks and banking. The publication either orally or in writing of statements derogatory to a bank was made a criminal offense. The child labor laws were slightly amended, and age and school certificates, and the duties of truant officers were revised. A measure was enacted forbidding messenger boys under 18 years of age being employed between nine o'clock at night and six in the morning. An amendment to the constitution dealing with the method of submitting to the voters of the State the question of the constitutional convention, was submitted to the people. The laws dealing with corporations were amended and a section was added to the trust act which declares that foreign organizations violating the act shall do no business in Ohio. Proceedings by quo warranto are authorized and by injunction against violation of the

law. All parties to any trust agreement are to be made parties to the suit whether they live in the State or not. An act was passed punishing the making or use of false statements to obtain property or credit, and a law for the punishment of dishonest peddlers was revised. A measure was passed authorizing the governor to remove any sheriff who shall permit a mob to take a prisoner from his custody. A commission was appointed to investigate the subject of an employers' liability law and a law for workmen's compensation. A measure was passed declaring that minor employes working contrary to the child labor law, are not deemed guilty of contributory negligence nor will assume any risk, but the employer may show fraud or misrepresentation of such employe in mitigation of damages. The employe is also given the right to begin a new action within one year after final judgment against him, otherwise than on the merits, although the statutory time limit may have in the meantime expired. Employes with a judgment against their employers are subrogated to all the employer's rights in insurance contracts. A personal representative of the deceased employes has all the rights of the deceased. A measure was also passed declaring void those provisions in employers' liability insurance policies which render the policies inoperative in case of the employers' insolvency; and permitting employers and insurance companies to be joined in the same action. These provisions, however, were vetoed by the governor. A measure was passed regulating the sale of cocaine in the State. A law was passed permitting city boards of education to establish special elementary schools for children with tuberculosis. October 12 was made a legal holiday, to be known as Columbus Day. Several amendments were made to the insurance laws. By one of these minors between 15 and 21 years of age may contract for life insurance, surrender policies, and give valid discharges. The selling of any insurance note before delivery of the policy is made a criminal offense. Rebates direct or indirect on fire insurance policies are penalized. There is also a penalty for changing, destroying or altering any book or papers which are material to the investigation of State inspection officers. A statute was passed requiring the selection of candidates for congress and delegates and alternatives to the national conventions at primary elections by direct popular vote. A measure was passed extending the classified service to cover all appointed city school district employes, except school physicians and a few others. After three years' service no such employe may be discharged except for cause after a hearing. A law was passed limiting the tax rates. In any one district the rate is not to exceed ten mills on one dollar for all purposes under certain conditions. Important legislation was enacted relating to white slaves, as a result of the agitation carried on during 1909-10.

**STATE OFFICERS.** Governor, Judson Harmon; Lieutenant-Governor, Atlee Pomerene; Secretary of State, Charles H. Graves; Treasurer, David S. Creamer; Auditor, Edward M. Fullington; Attorney-General, Timothy S. Hogan; Adjutant-General, Charles C. Weybreth; Commissioner of Insurance, Charles C. Lemert—all Democrats, except Fullington.

**SUPREME COURT.** Chief Justice, William T. Spear; Associate Judges, James G. Johnson,

Maurice H. Donohue, John A. Schauck, William Z. Davis, James L. Price; Clerk, Frank McKean—all Republicans except Johnson, Donohue, and McKean.

**STATE LEGISLATURE, 1911:** Republicans, Senate, 15; House, 49; joint ballot, 64. Democrats, Senate, 19; House 70; joint ballot, 80. Democratic majority, Senate 4; House, 21; joint ballot, 25.

**OHIO STATE UNIVERSITY.** An institution of higher learning at Columbus, O., founded in 1870. The total number of students registered in 1909-10 was 3275, while the faculty numbered 220. Dr. William Henry Scott, professor of philosophy, retired after thirty-eight years of service. Lewis Addison Rhoades, Ph. D. (q. v.), professor of German, died August 30, 1910. George David Hubbard, Ph. D., assistant professor of geology, resigned to accept the headship of the department of geology at Oberlin College. Dr. Joseph A. Leighton of Hobart College, was appointed professor of philosophy to succeed Dr. Scott. The productive funds of the University amounted in 1909-10 to \$924,053 and the present income is about \$925,000. The President is W. O. Thompson, D. D., LL. D.

**OHIO VALLEY EXPOSITION.** See EXPOSITIONS.

**OKLAHOMA.** One of the West South Central Division of the United States, formed in 1907 by the union of Oklahoma and Indian Territory. Its area is 70,057 square miles. Its capital is Oklahoma City.

**POPULATION.** The population in 1910, according to the Thirteenth Census, was 1,657,155 as compared with 790,391 in 1900 and 258,657 in 1890. The increase in population in the decade 1900 to 1910 was 109.7 per cent. Oklahoma was second among the States in the percentage of increase in the decade 1900 to 1910, being surpassed only by Washington. It ranks twenty-third in point of population, whereas in 1900 it ranked thirtieth. The population and percentage of increase in 1890 and 1900 includes Indian Territory. The population of the larger cities and towns will be found in the tables of the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** The development of the petroleum fields of the State has been one of the most important features in the mineral developments of the country in recent years. The Oklahoma fields form, with the Kansas fields, the Oklahoma-Kansas field, which is second in production among the petroleum fields of the country. In recent years the production in Kansas has decreased while that in Oklahoma has slightly increased. There were produced in 1909 47,859,218 barrels of petroleum valued at \$17,428,990 as compared with a production in 1908 of 45,798,765 barrels, valued at \$17,694,842. There were 2742 completed wells in the State at the end of 1909. The coal production of the State has increased greatly in the last few years. The production of 1909 showed an increase over that of 1908, which, however, was surpassed by that of 1907. The production in 1909 was 3,116,500 short tons as compared with a production in 1908 of 2,948,116 short tons. The coal mining industry of 1910, according to the estimates of the United States Geological Survey will show a decrease from that of 1909. The gold products of the State are of considerable value. In 1908 these amounted in value to \$562,929. Among other mineral products are

coal products, gypsum, lime, mineral waters, stone, sand, and gravel.

**AGRICULTURE.** The acreage, production, and value of leading crops is given for 1909 and 1910 in the following tables:

	Acreage	Prod. bu.	Value
Corn, 1910.....	5,772,000	92,352,000	\$47,100,000
1909.....	5,950,000	101,150,000	55,632,000
W. wheat, 1910	1,556,000	25,363,000	22,066,000
1909	1,225,000	15,680,000	15,837,000
Oats, 1910.....	632,000	23,068,000	8,535,000
1909.....	550,000	15,950,000	7,337,000
Barley, 1910...	32,000	960,000	518,000
1909	30,000	690,000	448,000
Rye, 1910.....	4,000	35,000	45,000
1909..	4,000	54,000	50,000
Flaxseed, 1910..	5,000	45,000	50,000
Potatoes, 1910.	26,000	1,560,000	1,560,000
1909	27,000	1,890,000	1,796,000
Hay, 1910.....	900,000	945,000a	7,938,000
1909.....	900,000	810,000	6,913,000
Cotton, 1910 ..		900,000b	
1909		544,954	

a Tons. b Bales.

**FINANCE.** The report of the State Treasurer for the fiscal period November 30, 1908, to November 30, 1910, showed a balance in the treasury on November 30, 1908, of \$32,124. The total receipts during the period were \$3,386,488 and the total expenditures were \$3,212,130 leaving a balance in the treasury November 30, 1910, of \$174,358. The chief receipts were from taxes, from insurance companies and from State institutions. The chief disbursements were for education, maintenance of State institutions, and support of the executive offices.

**CHARITIES AND CORRECTIONS.** None of the charitable and correctional institutions of the State is completely constructed, but nearly all are in operation in temporary quarters. Among these are the Oklahoma State Home at Pryor Creek, which cares for orphans and had an average population in 1910, of 130; the Oklahoma State Home, formerly the Whitaker Orphan Home, which contains 53 children, nearly all of whom were on the tribal rolls of Indians; the State School for Feeble-Minded at Enid was established by the second legislature of the State, but until August, 1910, no steps were taken toward building; the Oklahoma Hospital for the Insane at Supply, which had an average of 511 patients during the year. This is housed in the residences and buildings of old Fort Supply. For the Eastern Hospital for the Insane, \$200,000 was appropriated by the legislature of 1909 to construct buildings. The buildings have not yet been completed. The other institutions of the State are Oklahoma Hospital for the Insane at Norman, the Oklahoma Training School, Oklahoma School for the Blind, Oklahoma School for the Deaf, the Industrial Institute for Negro Dependent and Defective Children, the State Reformatory at Granite and the State Penitentiary at McAlester. Buildings for most of those institutions are in course of construction or money has been appropriated for their construction in the future.

#### POLITICS AND GOVERNMENT.

There was no regular session of the legislation in Oklahoma in 1910 as the sessions are biennial and the last was held in 1909. There were special sessions, however, held for various purposes at the call of Governor Haskell, and the most important measures passed at these sessions will

be found in the paragraph *Legislation* below. On January 12, the governor called a special session in order to have certain statutes relating to finances amended.

**ELECTIONS.** Primary elections for the nomination of candidates for governor and for Congress were held on August 2. An important measure also to be decided at this election was that relating to the disfranchisement of negroes. This was in the form of the so-called "grandfather clause" amendment to the constitution similar to clauses enacted by several Southern States, exempting illiterate whites and Indians. As a result of the primaries Joseph W. McNeal, Republican, and Lee Cruce, Democrat, were nominated for governor. The grandfather clause amendment was carried, depriving about 30,000 negroes in the State from franchise. There was no real issue in the campaign between the insurgents and regulars in the Republican party. The election on November 8 resulted in the election of the Democratic candidate for governor, Mr. Cruce. He received 120,218 votes as against 99,520 votes for the Republican candidate and 24,707 for the Socialist candidate. The Democrats also elected three congressmen, while the Republicans re-elected two. A constitutional amendment granting suffrage to women was rejected at this election as was also a measure providing for local option. The operation of the grandfather clause mentioned above threatened disturbances at the polls. The Federal authorities refused to admit the constitutionality of the measure and threatened arrests for conspiracy followed any attempt made to prevent negroes who can read and write from voting. The State Supreme Court had decided that the grandfather clause is constitutional. The threatened disturbances, however, did not take place. In Guthrie all precincts where negroes voted were not counted in the returns, although Attorney-General West held a final opinion that no precinct could be thrown out unless the face of the returns showed gross frauds. As a result of the complications over the enforcement of the clause against negroes special grand juries were called together at Guthrie, McAlester and Wagoner to consider alleged violations of the law.

An attempt was made to bring about the removal of the capital of the State from Guthrie to Oklahoma City. An election was held on June 11, providing for such a removal and the capital was removed by Governor Haskell to Oklahoma City, although strong protests were made by citizens of Guthrie and others against this action. On July 27 the State Supreme Court denied the right of prohibition asked by the governor to enjoin Judge Huston in the District Court from enforcing the injunction issued by him to restrain the removal of State offices and records from Guthrie to Oklahoma City. By this decision all State officers, with the exception of the governor over whom the court has no jurisdiction, were required to remain in Guthrie pending the final determination of the case in court. On November 15 the court made its final decision fixing the capital at Guthrie. The court declared the election held on June 11 unconstitutional on the ground that the title of the ballot did not conform to the law. Governor Haskell declared his intention to call a special session of the legislature to remove the capital to Oklahoma City, which was done, and the capital of the State is now fixed at Oklahoma City.

The most sensational events in the State from the national standpoint were related to the charges made in the Senate near the close of Congress by Senator Gore of Oklahoma that an attempt had been made to bribe him to withdraw his opposition to contracts made with the Indians of the Choctaw and Chickasaw tribes for the sale of coal and asphalt lands valued at more than \$30,000,000. The government had authorized the sale of these lands and a certain law firm had secured contracts from some 10,000 Indians to act for them as their representatives in the sale of these lands for a fee of 10 per cent., and Senator Gore accused this lawyer and his agents of having attempted to bribe him. Senator Gore in January introduced a resolution providing for a general investigation into the affairs of the "Five Nations," and requiring the Attorney-General and Secretary of the Interior not to confirm any contracts pending the investigation. In May he introduced another measure making all contracts relating to money and property owned by the Indians subject to approval by Congress. The Senator alleged that he was approached by the would-be briber to withdraw this bill or at least have it reported unfavorably. He further related that the man who had offered him money had mentioned the names of several other men high in government office as being interested in the transfer of the lands. A committee of Senators was appointed to investigate these charges.

During the first week in August testimony was taken at Muskogee by a special committee of the House of Representatives regarding their charges. Senator Gore was made the first witness. He said that in 1905 he had directed the attention of Senator La Follette and others to the great value of the lands. Afterward tribal contracts for the sale of these lands were obtained by J. F. McMurray, who was to receive a commission of 10 per cent. These contracts were disapproved of by President Roosevelt. The attorney of Mr. McMurray then procured contracts of the Indians as individuals. Senator Gore declared that he had told Mr. McMurray, who came to his office, that 10 per cent. was too much and that the Indians ought not to pay any commission. Furthermore, in letters to the President and others, he denounced the contracts. He said that he had been told in Secretary Ballinger's office that former Senator Long of Kansas had an interest in them. Senator Gore asserted that he introduced a resolution providing that all such contracts be void unless approved by Congress, and a favorable report was ordered on this resolution. On the following day, Jacob L. Hamon, a lawyer from Oklahoma, and formerly chairman of the Republican committee of that State, came to see him, saying that he was interested in the contracts and asked that the Senator's opposition should cease. Senator Gore said that \$25,000 or even \$50,000 was promised to him by Hamon if opposition should be withdrawn. He later added that Senator Curtis of Kansas, Congressman McGuire of Oklahoma, and a man of even higher position, were interested in the contracts. In response to a request from the members of the committee, the Senator gave the name of the man thus alluded to as that of Vice-President Sherman. The Senator testified that his relations with Hamon had been friendly and that he had been interested with him in business projects. Congressman C. E. Creager of Oklahoma followed Senator Gore

on the witness stand. He testified that he had met Hamon at the Washington Hotel by appointment and that he had been urged by the latter to withdraw his opposition. Hamon, he declared, told him that he might have an interest in the profits. The witness declared that he would not permit Hamon to go any further. D. F. Gore, the Senator's brother and secretary, testified as to Hamon's interview with the Senator. He declared that he heard no part of the conversation, being in the next room, but when Hamon came out, complained that the Senator was hard on his friends. Hamon's reply to this testimony was a series of denials. He declared that he had called upon Senator Gore to talk about his campaign and that he had never said anything about the contracts or about Vice-President Sherman, or Senator Curtis or Congressman McGuire. He declared also that he had never spoken of the contracts to Creager and declared that he never had any interest in them. He asserted that he had frequently loaned money to Senator Gore, who just before the adjournment of Congress had asked him for \$5000 to pay a debt that he owed to Senator Owen of Oklahoma. Hamon declared that he had been in Washington attending to the interests of Governor Haskell, then under indictment, and that he had not seen McMurray for a year. On cross examination he attacked the character of Senator Gore, saying that he believed that the Senator could be safely approached with an improper offer and that he had taken bribes. He furthermore charged that Senator Gore had entered into a combination with him and others, binding themselves not to bid against each other in the purchase of Indian lands. Green McCurtain, a Choctaw Indian chief, testified that he had protested against the individual contracts, but that he had been urged by George W. Scott to withdraw his opposition, offering him one-fourth of the 10 per cent. commission if he would do so. The Indians, he said, had signed the contracts because they had lost faith in the government officers, who had not kept their promise. His son, D. C. McCurtain, testified that when he was a Choctaw delegate at Washington, McMurray at an interview, had offered him \$25,000 if he would not oppose the contracts. Vice-President Sherman declared that there was no shadow of foundation for the alleged reference to him made by Gore. He declared that the statement that he had any interest in these or any other contracts made with the Indians, or any interest in any contract having anything to do with the government in any way or that he had profited by his public service was absolutely false. Senator Curtis denied also that he had any such relations with the contracts as had been charged and declared that he and the Vice-President had called upon the President by invitation to discuss the questions relating to the Indians and that both of them opposed the 10 per cent. contracts, holding that the Indians needed no attorneys and should not pay any commission. McGuire denied that he had ever been interested in the contracts and said that he had received no financial aid from anyone who was interested in them. Mr. McMurray denied that anyone had offered a bribe in his interest.

On August 6, Senator Gore published a statement in which he declared that he had made no charge against Vice-President Sherman. He said that he had been required by the committee to repeat what Hamon had said and

that he had named Mr. Sherman with extreme reluctance.

Several Indians, members of the Chickasaw tribes, testified at the hearing that they had signed the contracts because of the government's delays and were willing to pay a 10 per cent. fee for a prompt settlement. They declared that they would have paid even 25 per cent. for such a settlement. It was testified that McMurray employed agents to procure the signatures of the Indians, paying them \$1 each. Douglas F. Johnson, chief of the Chickasaws, 85 per cent. of whom gave the required authority, testified that these Indians signed willingly, seeing no other way to obtain their money. The attorney, it was alleged, also employed agents to procure letters and telegrams to be sent to President Taft and members of Congress in favor of the 10 per cent. agreement. Fifty of these letters were sent just before May 6, when Senator Gore alleges that Hamon offered him the bribe. Congressman Carter of Oklahoma testified that among those who had helped in securing these contracts were Congressman McGuire and Dr. Wright, a Choctaw delegate.

The hearing of the charges of attempted bribery made by Senator Gore were continued before the Congress Committee on the re-assembling of Congress in December. Richard C. Adams, hereditary chief of the Delaware tribe of Indians, testified before the committee that he held contracts with the Delawares covering the payment of \$20,000,000 of claims, that his fees were to be from 10 to 25 per cent. and that all the contracts, fee provisions included, had been approved by the government. His compensation will be between \$2,000,000 and \$5,000,000 when the claims are paid.

**OTHER EVENTS.** The trial of Governor Haskell, W. T. Hutchings, C. W. Turner, Walter Eaton, A. Z. English and F. B. Severs on charges of conspiracy to defraud the government in the purchase of town lots at Muskogee, was begun on September 26. Indictments were found against these men in 1909, but for technical causes they failed, and it was necessary to bring new indictments. The Assistant Attorney-General, S. R. Rush, entered a plea of nolle prosequi, and Judge Marshall ordered the cases dismissed and the defendants discharged. Mr. Rush declared that the cases had been brought in good faith to protect an Indian tribe in the State and to enforce the governmental policy of the United States in respect to Indians and their property. It was necessary, however, to abandon the prosecution because of the decision by the Circuit Court of Appeals rendered in June, 1910. This decision overruled a decision made by Judge Marshall wherein he held that the prosecution of deeds by the conspirators through dummy schedules to themselves were proper overt acts and done to effect the object of the conspiracy. Mr. Rush declared that in spite of this failure the suits had resulted in the return to the government of \$40,000 in cash and about 100 lots, making a total value of about \$920,000. This money and property had been returned by the defendants, Severs and English.

On July 7, an agreement was reached between the State authorities and the Waters-Pierce Oil Company by which the latter paid a fine of \$75,000 and confessed judgment to the allegation that it had not offered its commodities according to the laws of the State. A third agree-

ment was to the effect that until the Corporations Commission had time to regulate the prices of the defendant company uniform prices should be maintained on petroleum products in Oklahoma. The Waters-Pierce Company in the near future is to erect in Oklahoma a refinery to cost not less than \$150,000 convenient to the oil fields. This refinery is to be exempt from municipal taxation for five years. There was also a stipulation not made public fixing the maximum price the defendant company may charge for oil in Oklahoma.

**LEGISLATION.** Among the important measures enacted by the legislative session of 1910 were the following: An act was passed regulating the collection of debts. The act aims to prevent the assigning, transferring or sending of claims to persons or organizations out of the State for the purpose of collection, when all the parties including a garnisheed corporation are within the jurisdiction of Oklahoma. Violation of this statute is made a misdemeanor and is punishable by a fine of from \$500 to \$1000, or by imprisonment of from thirty days to one year, or by both, and the aggrieved debtor may recover from the creditor the amount of the claim and costs. The Federal income tax amendment was passed. Amendments were made to the statutes regulating probate procedure and in matters relating to the initiative and referendum. Prison-made goods sold in the State are to be labeled so as to identify the source of manufacture. A measure was passed regulating the sale of cocaine in the State. The general election laws of the State were revised and the party column ballot was substituted for the Massachusetts form which adopts the alphabetical arrangement. Several important tax laws were passed. One of these classifies railroads in accordance with the percentage of operating expenses to gross receipts and requires a State tax varying from .02125 to .016875 on valuations, and a county tax of from .004625 to .00375, according as this percentage ranges from less than 60 per cent. up to 90 per cent. The State gross receipts taxes on public service, mining and oil producing companies were changed in some particulars. A third measure imposes a license tax on all private business corporations except insurance and banking companies, fifty cents per \$1000 of capital for domestic and \$1 per \$1000 for that proportion of the capital of foreign corporations employed in Oklahoma, except in a business paying income or gross receipts taxes on its own account.

Important legislation was enacted relating to "white slaves" as a result of the agitation carried on during 1909-10. A legal rate of interest of 6 per cent. was fixed. The exaction of any rate up to and including 10 per cent. was permitted without incurring the penalties of usury.

**STATE OFFICERS.** Governor, Lee Cruce; Lieutenant-Governor, J. J. McAlester; Secretary of State, Ben Harrison; Treasurer, Robert Dunlop; Auditor, Leo Meyer; Attorney-General, Charles West; Commissioner of Insurance, P. A. Ballard; Commissioner of Education, R. H. Wilson; President of Board of Agriculture, Thomas Bryan—all Democrats.

**SUPREME COURT.** Chief Justice, Jesse J. Dunn; Associate Justices, Matthew J. Kane, Robert L. Williams, John B. Turner and Samuel W. Hayes; Clerk of the Court, W. H. L. Campbell—all Democrats.

STATE LEGISLATURE, 1911: Republicans, Senate, 15; House, 33; joint ballot, 48. Democrats, Senate, 29; House, 76; joint ballot, 167. Democratic majority, Senate, 14; House, 43; joint ballot, 57.

**OKUMA, S** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**OLD-AGE PENSIONS.** The old-age pension movement has become world-wide, and has taken a variety of forms. Some governments and many cities have established retirement pensions for their civil employees. States have long maintained retirement allowances for soldiers and sailors. Germany was the first to provide a general system of old-age insurance for working people. Many countries have followed her example. In the United States, while there is some agitation for public old-age pensions, the movement is taking the form of the establishment of retirement allowances by corporations and other large employers. Public old-age pension systems are now in operation in Austria, Australia, Belgium, Denmark, Finland, France, Germany, Great Britain, Ireland, New South Wales, New Zealand, Sweden and Victoria. The chief difference in these systems is that some, such as those of Great Britain, Australia and New Zealand, are granted without any previous contributions from recipients, while others, such as those of Germany, Belgium and France, are based primarily on contributions from the beneficiaries with supplement from the public treasury. The latter are either compulsory, as in Germany, Sweden and Iceland; or voluntary, as in other countries. The German system has been in operation since 1889. It provides insurance at the age of 70 on the basis of compulsory payments from employer and employee. Austria provided for a system of voluntary old-age insurance on the basis of contributions by employers and employees in 1909. While Denmark grants small sums to the aged worthy poor, England and Austria have endeavored to remove all stigma of poverty from their systems, by viewing the pension as a right, earned by years of honest toil. In Belgium the practice of granting subsidies to mutual benefit societies prevails. The important developments of the year are noted below.

**UNITED STATES.** *Massachusetts.* The final report of the commission appointed in Massachusetts in 1907 to investigate old-age pensions was submitted in January, 1910. This final report presented in full the results of a comprehensive study of all existing schemes. It classified these schemes as universal, non-contributing, such as Edward Everett Hale's universal grant of \$100 per year to every person 69 years of age or over; partial non-contributing, such as those in Great Britain and Australia, where pensions are granted to only specially needy persons; compulsory contributing with State subsidy, as in Germany; voluntary contributing, with State subsidy, as in Belgium; voluntary old age insurance under public administration, as is provided by the Massachusetts savings bank insurance; and voluntary insurance under private management, as is provided by industrial insurance companies and the old-age retirement plans of corporations. The commission strongly favored granting old-age pensions to public servants, especially of cities. The reason for this was primarily that economy and efficiency would be secured, but it was also pointed out that at present the political influ-

ences tend to prevent the discharge of public employees who have outlived their usefulness. A non-contributing old-age pension plan for the State was rejected, primarily because the probable annual expense would be about \$10,000,000; but also because this plan discourages saving and leads to family disintegration by relieving children of the support of aged parents; and because employers would reduce wages so as to recompense themselves for the heavier taxes which the plan would make necessary. The investigators held such a plan to be suitable only for a State in a condition of decadence. A compulsory plan was also rejected as not likely at present to commend itself to public opinion in this country. The commission, however, stated its belief that some plan of compulsory State insurance would be ultimately adopted. The report, therefore, limited itself to recommending an increased use of present facilities. It favored compulsory instruction in thrift in the public schools; it urged upon employers and employees greater use of the Massachusetts savings bank insurance and other industrial insurance; it commended the old-age retirement schemes adopted in recent years by leading American railways and industrial corporations; it recommended that a law be enacted allowing fraternal societies to give old-age pensions; and it presented a contributory plan for the retirement of public employees.

This report led to a law, approved May 26, authorizing employees and employers to establish coöperative retirement annuity or pension systems. Both parties must contribute; and annuities or pensions must be paid on scales approved by the State insurance department. The plan can be inaugurated only by the approval of two-thirds of the employees present at a meeting called for that purpose. Acts were also passed authorizing the city of Boston to pension its school teachers and authorizing cities and towns to establish retirement systems for civil service employees. This latter was an elaborate statute providing in detail the basis for both annuities and pensions and rules of administration.

*National.* Late in June a petition of 16,000 employees of the executive departments in Washington and 5500 employees of the United States Civil Service in other cities asking for a national old-age pension law for civil servants of the government was presented to Congress by Secretary of the Treasury MacVeagh. This petition was in line with the agitation which the civil service employees of the United States, through their Retirement Association, have maintained for several years. President Taft had stated his hearty sympathy with some plan of providing for those who have become too old to render proper service, some such plan being necessary to the efficiency of the merit system. Those interested in the old-age pension proposal have pointed out that many large corporations have provided for the retirement of their older employees and have found it economical to do so; and that, among civilized nations, two South American republics, Santo Domingo and the United States are the only ones that have not provided for superannuated employees. The government now provides old-age pensions for the army and navy; it is asked why it should not provide similarly for the more than 150,000 persons in the executive civil service. It was argued that a contributory plan would not be justifiable for such employees since only about

seven and one-half per cent. attain to the age of sixty and only a little more than one-half per cent. to the age of seventy; also, the expense of collection and bookkeeping would be economically wasteful. On the other hand, for one per cent. of the pay roll the government could provide for the retirement of all employees of the classified civil service at seventy. The Goulden bill, which was before Congress in 1910, provided for retirement at different ages with compensation based on the number of years of service; thus for retirement at the age of sixty years after a service of thirty years the retirement pay would be 75 per cent. of the average annual pay for the last five years; for retirement at the age of sixty-five after twenty to twenty-five years of service, the retirement pay would be 40 per cent. of the average annual pay. Moreover, for disablement at any age after five to ten years' service the retirement pay would be 30 per cent. of the average annual pay; and after more than twenty-five years of service would be 75 per cent.

*New York and New Jersey.* That these movements in Massachusetts and the national government are not isolated is shown by the demand of the Comptroller of New York State for a system of retirement pensions for employees reaching an age limit as a means of raising the efficiency of the office force. He pointed out that such was a matter of economy also because at present many employees are retained at high salaries who have passed the age of greatest efficiency. A special commission was appointed in New Jersey to inquire into the subject of public old-age pensions.

*ENGLAND.* Under the old-age pension law of 1908 there were 699,352 pensions in force on April 1. They were distributed as follows, according to number of shillings per week: 5s., 638,147; 4s., 22,870; 3s., 22,239; 2s., 10,536; 1s., 5560. By countries: England and Wales, 441,489; Scotland, 76,889; Ireland, 180,974. The cost for the year was about £8,800,000, or \$42,500,000. Beginning with January 1, 1911, those previously disqualified because of poor relief will become eligible. This is expected to increase the cost by £2,500,000 per year.

The United States Department of Commerce and Labor published the first of a series of studies on the civil service pension systems of other countries, dealing with Great Britain and New Zealand. It showed that from 1834 to 1859 England retired male civil employees on the basis of annual deductions from their salaries. From 1859 to the present time retirement pensions have been granted out of the public treasury. In 1902, however, seventy thousand of the one hundred thousand persons in the service formed the Deferred Pay Committee. They claimed that on account of the pension system their salaries were unduly small, so that they were in reality contributing the funds for the payment of their own pensions. A commission appointed to investigate conceded this claim, with the result that a law of 1909, while reducing the size of pensions in general, made some allowance for this claim. See *GREAT BRITAIN, History*.

*NEW ZEALAND.* The New Zealand system showed several improvements over the English. New Zealand had tried both a lump sum payment on retirement and the system of pensions based on compulsory deductions from salaries, but in 1907 the present plan based on contribu-

tions from employes with a subsidy from the government was adopted. The contributions are based on the age at entrance to the service, and the annuity is determined by the length of service and the amount of salary. Both men and women, including teachers and railway employes, and the widows and orphans of beneficiaries are included in the scheme. It has the defect of not compelling retirement at a certain age. Moreover, the amount refunded to those resigning before the age of retirement does not include interest on their contributions.

*FRANCE.* In 1906 the Chamber of Deputies passed an old-age pension bill, but the Senate refused to concur. Agitation for the passage of the old-age pension measure was continued from year to year, but it was not until 1910 that a measure finally passed both houses. This law, which becomes effective January 1, 1911, provides for the compulsory insurance of all farmers, workingmen, servants, whose annual earnings were below \$600 per year. It provides optional insurance for farmers and small proprietors whose incomes range from \$600 to \$1000 per year. It was estimated that, out of a total of twenty million persons engaged in gainful occupations, twelve millions would be included under the compulsory provision and six millions under the option clauses. The whole scheme is placed on a contributory basis as in Germany and Belgium, rather than on a non-contributory basis as in England. Laborers are required to make compulsory contributions at the rate of 9 francs per year for men, 6 for women and 4½ for boys under 18 years. Equal sums must be contributed by employers, who are also authorized to deduct workers' contributions from wages. Benefits of the law will be granted at age 65, but only to those who have been wage-earners for 30 years; however, persons too old at the beginning of the plan to pay for 30 years will benefit. The law provides for a lump sum or *rente* based on the compulsory contributions, and an annuity or *viagère* granted by the state. It is estimated that the annual cost to the state will be about \$100,000,000.

*OLEOMARGARINE.* See *MEAT AND MEAT INSPECTION*.

*OLIVER, FRANK.* See *CANADA, Government and History*.

*OLMSTEAD, FREDERICK LAW.* See *MUNICIPAL GOVERNMENT*.

*OMAN.* An independent Mohammedan state in southeastern Arabia. Area, about 82,000 square miles; population (estimated), about 500,000, chiefly Arabs. Capital, Muscat, with 25,000 inhabitants; it has the only good harbor. The country is arid, the rainfall averaging only about five inches annually. Little is known of the resources of the interior. The trade amounted (1909-10) to £831,300, about 71 per cent. with India and Great Britain. Dates are the main article of export. Transport is by pack animals. The sultan (1910, Seyyid Feysal bin Turki, born 1864, succeeded 1888) is subsidized by the government of India. Tribal warfare and brigandage are a constant menace to his authority, and British warships have been several times in requisition to sustain the government. British Political Agent, Major A. P. Trevor.

*OMAN, W. C.* See *LITERATURE, ENGLISH AND AMERICAN, History*.

*ONTARIO.* A province of Canada (since July 1, 1867). Capital, Toronto. Area, 260,-

862 square miles. Population (estimated 1910), 2,687,861. For details, see CANADA. The government consists of the Lieutenant-Governor, appointed by the Governor-General of Canada, the Executive Council (responsible ministry), and the unicameral Legislative Assembly of 106 members. In 1910, Lieutenant-Governor, Col. John Morison Gibson (appointed September 22, 1908); Premier, Sir James P. Whitney.

**OPEN-AIR SCHOOLS.** See EDUCATION IN THE UNITED STATES.

**OPERA.** See MUSIC.

**OPIUM.** According to reliable reports, China was making great progress in the suppression of the opium traffic in 1910, and anti-opium leagues have been formed in many of the large Chinese cities. One missionary states that in Fu Chau there is not a single opium den, where three years ago these places were more numerous than rice shops. One encouraging evidence is the fact that the danger of famine in the western district of China has been lessened by the amount of land diverted from opium culture under the recent laws and devoted to the growth of food products. In place of enormous fields of poppy flowers, there are now plantations of rice and hemp, and the open culture of the opium plant is becoming a thing of the past. While there are opium dens in some provinces, especially near European settlements, and hand to hand selling still continues to some extent, the outlook is decidedly encouraging.

On December 12 the State Department at Washington announced the completion of long-continued negotiations for an international conference to suppress the opium traffic. With one exception all the nations addressed have agreed to confer at The Hague on May 30, 1911. The nations to be represented are China, Great Britain, France, Germany, Italy, Japan, the Netherlands, Persia, Portugal, Russia, and Siam. Great Britain proposed to include morphine and cocaine in the prohibition to be enforced, and the United States will support this proposition. The Department of State is preparing legislation to be submitted to Congress regulating the interstate traffic in this drug. See CHINA, paragraphs on *History*.

**OPIUM COMMISSION.** See CHINA, and OPIUM.

**OPPENHEIM, E. P.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**ORANGE FREE STATE.** Formerly the ORANGE RIVER COLONY. A province (since May 31, 1910) of the Union of South Africa (q. v.); originally an independent republic, deprived of name and independence, May 24, 1900, for participation with the South African Republic in the war with Great Britain, and annexed, under the name the Orange River Colony, to the British crown. By the South Africa Act of 1909, under which the colony became an original province of the Union, the old name, Orange Free State, was restored. Provincial capital, Bloemfontein.

**AREA AND POPULATION.** Total estimated area, 50,392 square miles. Population (1904), 387,315 (white, 142,679). Bloemfontein had 33,883 (white, 15,501) inhabitants; Kroonstad, 2454 whites, 3343 natives; Ladybrand, 2333 and 1515; Harrismith, 2238 and 3068. Government schools, 400, with 19,000 pupils. There are special schools, and Grey College at Bloemfontein. The country is essentially pastoral; but in the eastern portion are wide tracts adapted to grain

cultivation. Government lands allotted, 1,457,541 acres, distributed among 650 settlers. Acres under wheat (1906-7), 155,330; under tobacco, 1543. Livestock (1907): 127,579 horses, 585,077 cattle, 8,020,308 sheep, 62,439 swine. Total value of mining output in 1908-9, £1,191,334 (1907-8, £1,247,316), distributed as follows:

	1907-8		1908-9	
	Tons	£	Tons	£
Coal .....	524,487	145,374	470,591	125,627
Diamonds .....	505,452*	1,069,942	654,319*	1,048,607
Salt .....	2,135	32,000	1,456	17,100

\* Carats.

Trade and finance are given for three years below:

	1907	1908	1909
Imports .....	£3,317,770	2,945,860	3,662,696
Exports .....	3,789,653	3,558,373	4,777,126
Revenue*	740,367	915,266	952,890
Expenditure *	733,233	952,513	957,741

\* For fiscal years 1907-8, 1908-9, 1909-10.

For railways, see TRANSVAAL. Telegraph lines, 6938 miles; telephone lines, 555 miles. The postal savings banks had (1908) 6831 depositors and £165,968 deposits. The government is administered by an administrator (1910, A. E. W. Ramsbottom), aided by a provincial council, elected for three years. There is an executive committee of four members.

**HISTORY.** The educational controversy continued to bring up sharp antagonism in the Legislative Council where the Classification of School Teachers bill was read a second time at the beginning of April. This measure imposed disabilities on teachers unless they spoke both languages. In the latter part of 1909 there had seemed to be a chance of amicably settling the school question. In November, 1909, a conference was held between General Hertzog and the opponents of the government's school policy. It was adjourned to meet again on Jan. 31, 1910, but it was soon clear that the government would do nothing to improve the situation of the English speaking children in the schools. General Hertzog refused the request of delegates that the medium of instruction should be left to the choice of the parents and the conference finally broke up without any result. Another conference was held on February 21, but General Hertzog insisted on such limitations upon the use of English that the conference adjourned after resolving that it could not offer any further suggestions. At a brief extraordinary session of Parliament, which began on March 15, the governor's message referred to legislation for promoting agricultural coöperation and for authorizing the sale of the government's interest in the national banks. There was some discussion of appeal to the Home Government on the education question, but in reply to a question addressed to the Colonial Office it was said that this was clearly a matter for the province to decide. The opponents of the Hertzog policy seemed inclined to found independent schools as the only alternative. An amendment to the School Teachers bill, lessening the disabilities of English teachers who do not speak both languages, was brought forward by General Hertzog, but the opposition continued to fight it bitterly and finally the opposing members withdrew from the Assembly as a protest. The bill was then passed in their absence. See SOUTH AFRICAN UNION.

**ORCHARDSON, SIR WILLIAM QUILLER.** An English artist, died April, 1910. He was born at Edinburgh, in 1835, and entered the Trustees' Academy in that city in 1850. His first work was exhibited at the Royal Scottish Academy. In 1863 he went to London and exhibited in the Royal Academy, of which he was elected an associate in 1868. He became a fellow in 1877. He was especially successful in the delineation of certain of Shakespeare's characters, among them "Hamlet" and "Ophelia." Among his other notable works are: "The Challenge" (1865); "Christopher Sly" (1866); "Napoleon I on board H. M. S. Bellerophon," (1880); "The Rift within the Lute" (1887); and "In the Gloaming" (1901).

**ORCHESTRAS.** See MUSIC.

**ORE DEPOSITS.** See GEOLOGY.

**ORE SHOOT.** See GEOLOGY.

**OREGON.** One of the Pacific Division of the United States. It has an area of 96,699 square miles. Its capital is Salem.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 672,765, as compared with 413,536 in 1910 and 317,704 in 1890. The increase in the decade 1900 to 1910 was 62.7 per cent. The State ranks thirty-fifth in point of population, whereas in 1900 it ranked thirty-sixth. The population of the chief cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** The most important mineral in point of value is gold, which in 1910 was produced to the value of \$631,173. This was a marked decline from the product of 1909, which was valued at \$829,000. There were also produced 628,486 fine ounces of silver, as compared with 69,800 fine ounces in 1909. The State produces a considerable quantity of coal and the product in 1909 was 87,276 short tons, having a spot value of \$235,085. This differed only slightly from the production of the preceding year, which was 86,259 short tons, valued at \$236,021. Only two mines in the State, both in Coos county, shipped coal in large quantities, shipments being made almost entirely by way of San Francisco. This State also produces sand and gravel, limestone and mineral waters.

**AGRICULTURE.** The acreage, production and value of leading crops in 1909 and 1910 are given in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	18,000	459,000	367,000
1909 .....	17,000	522,000	418,000
Winter wheat, 1910 .	467,000	11,068,000	9,297,000
1909 .	535,000	11,235,000	10,449,000
Spring wheat, 1910 ..	297,000	5,346,000	4,491,000
1909 ..	275,000	5,142,000	4,782,000
Oats, 1910 .....	302,000	10,419,000	4,897,000
1909 .....	288,000	10,886,000	5,661,000
Barley, 1910 .....	64,000	2,016,000	1,250,000
1909 .....	63,000	1,984,000	1,309,000
Rye, 1910 .....	15,000	226,000	226,000
1909 .....	9,000	153,000	153,000
Potatoes, 1910 .....	44,000	4,620,000	3,234,000
1909 .....	46,000	7,360,000	4,416,000
Hay, 1910 .....	439,000	922,000	11,156,000
1909 .....	422,000	865,000	10,120,000

**EDUCATION.** A marked increase in the development of the high school, and the re-establishment of the Oregon State Normal School by a vote of the people of the State through the initiative are the two points of interest in educational affairs for 1910. The normal schools have been closed for two years on account of the legislature of 1907 refusing to appropriate funds

for their maintenance. By the use of the initiative the voters of the State have decided that Oregon must have a good normal school. Under new laws a county may establish one central high school maintained by a county tax, or it may establish a county high school fund, and apportion the money to the various district high schools. The former plan suits the sparsely settled counties; the latter is better for the more thickly populated counties. Seven counties have the central county high school. Two counties adopted the county high school fund law in 1908, and in the November, 1910, election the same law was adopted in five more counties. The establishment of the county high school fund increases the efficiency of the high schools by placing their administration on a secure basis; it increases the number of high schools, and this makes it possible for the boy and girl to complete a good high school course without having to leave home; it increases the attendance of high schools, and the very large increase tends to show that home-seekers are choosing those counties which maintain the best system of schools. Oregon now has three State institutions for higher education, the University, located at Eugene; the Agricultural College, located at Corvallis, and the Normal School, located at Monmouth. The Reed Institute at Portland will open in September, 1911. Private institutions for higher education include Willamette University, Pacific University, Albany College, McMinnville College, Pacific College, and Dallas College.

**FINANCE.** The report of the State treasurer for the biennial period, October 1, 1908, to September 30, 1910, showed a balance in the treasury on October 1, 1908, of \$658,320. The receipts for the period amounted to \$7,095,855 and the disbursements to \$7,329,262, leaving a balance on September 30, 1910, of \$424,913. The common school fund of the State amounted on September 30, 1910, to \$6,038,454, the agricultural college fund to \$198,783, and the university fund to \$103,635.

**CHARITIES AND CORRECTIONS.** The charitable and correctional institutions of the State, with their population in 1910, are the following: Baby Home at Portland, 35; Boys' and Girls' Aid Society at Portland, 60; Children's Home, Portland, 65; Oswego Orphanage for Girls, 90; Beaverton Home for Boys, Beaverton, 120; Reform School for Boys, Salem, 94; Detention Home, Portland, 210; State Penitentiary, Salem, 426; Asylum for the Insane, Salem, 1617; Institution for Feeble-Minded, Salem, 181. A bill has been introduced into the legislature changing the name of the Reform School for Boys to the Oregon State Training School. The indeterminate sentence law of the State is to be amended to apply to all cases except capital crimes. Efforts are being made to pass legislation which will take out of the prison the contract system at present in operation. The convicts are leased to a private concern at the rate of 45 cents a day per man. It is intended to amend this system by having the convicts work on the public roads of the State.

#### POLITICS AND GOVERNMENT

There was no meeting of the State legislature in 1910, as the sessions are biennial, and the last one was held in 1909. The next session begins January 3, 1911.

**ELECTIONS.** Elections in Oregon are held under a unique system of election laws passed in 1905, and amended in later years, which provides for the popular election of Senators and does away with the system of party conventions. Nominations for State officers, for Congress and for Senators are made in the primary elections. The national interest in the working of these laws is great and the results of the election in 1909 were regarded with great interest outside the State. Although conventions as such are abolished, the Republicans held a meeting before the primaries under the name of Assembly, and Jay Bowerman, President of the State Senate, and Acting Governor of the State, was recommended for governor. Legally, the Assembly could do no more than advise the voters. Mr. Bowerman was nominated subsequently in the primaries. The Democrats nominated in the primaries Oswald West, then a member of the State Railroad Commission. In addition to the election of State officers, Congressmen and Senators, there were 32 laws and amendments to the State constitution to be adopted or rejected by a vote of "yes" or "no." There were two questions of unusual importance in the State elections, the first, the working of the direct primary law in the election of governor, and the other, the question of State-wide Prohibition. The State has a local option law, adopted in 1905, which permits whole counties or even single precincts to go "dry." Under these provisions practically all the State, excepting counties containing large towns and cities, had voted no license. The advocates of no license endeavored to bring about Prohibition in these cities and towns by the use of the Prohibition vote in "dry" counties. They made an aggressive campaign for a State-wide Prohibition amendment of the constitution, and speakers were brought from all parts of the country. The opponents of Prohibition proposed a "home rule" amendment to the constitution, which practically makes cities and towns units in the matter of voting license. The Prohibitionists were defeated by 17,681 votes, while the "home rule" amendment was carried by 2542 votes. An amendment providing for woman suffrage in the State was defeated for the fifth time. A constitutional amendment providing for the complete reorganization of the legislature and proportional representation, was also defeated. An employers' liability law was adopted, while a measure proposing a commission to consider the subject was defeated. An amendment permitting counties to issue bonds for good roads was carried by a substantial majority. A bill to extend the direct primary in nominating presidential candidates, and for paying expenses up to \$200 of delegates to national presidential conventions and electing delegates by popular vote was adopted by a narrow majority. A measure creating a Board of People's Inspectors of Government, to watch the business affairs of the State and to issue a magazine every two months to every voter free, giving an account of matters and making suggestions, was defeated.

Although Oregon is normally a Republican State by some 25,000 votes, Mr. West, the Democratic nominee, was elected by 6102 votes over Mr. Bowerman. This result was largely brought about by local issues. Although the insurgent Republicans are not as aggressive in Oregon as in several of the other western States, they succeeded in electing A. W. Laf-

ferty as member of Congress over John Manning, Democratic candidate, by 11,165. On the other hand, W. C. Hawley, a regular Republican from the first district, was returned to Congress by a majority of 8024.

Strong opposition developed in the State during the year to what is known as the Oregon system of voting on senatorial candidates. This opposition was chiefly within the Republican party, and the assembly referred to above, representing the faction opposed to the Oregon system, met in opposition to this system. But there was also a sentiment in the State in favor of even more radical laws relating to government. "The People's Power League of Oregon," which had been organized for the purpose of bringing about certain changes in the system of elections, proposed to amend a legislative article of the State constitution so as to secure the following changes: A six-year term for all members of the legislature, abolishing the hold-over system for Senators; election of Senators and Representatives by a system of proportional representation; power vested in the voters to recall any member of the whole Senate, of the whole House of Representatives, or the whole legislature; the presiding officers of the two Chambers not to be members of the legislature; they to appoint no committees and to have no voice or vote; making the life of a bill six years, if necessary, so that it may be acted upon any time within that period without dying a natural death because of adjournment; giving a majority of the members of each Chamber the power to call a special session of the legislature; limiting the power of the legislature to use the "emergency clause" in passing a bill, so as to prevent the filing of a referendum petition; amending the oath of office so as to prevent or minimize log-rolling. The amendment was defeated by 7335 votes.

The People's Power League was also sponsor for the presidential primary bill, which was adopted; for the defeated measure proposing to create a board of government inspectors and for a constitutional amendment, which carried, designed to eliminate consideration of technical errors in appeals to the Supreme Court. Perhaps the most important governmental step taken was the adoption of a constitutional amendment withdrawing from the legislature the power to enact laws relating to regulation and exemptions in taxation. The legislature may propose tax laws, but they must be ratified by the people at the polls, or the people may initiate and adopt tax laws without recourse to the legislature. Counties are given jurisdiction over tax exemptions and regulations within their own borders subject to general laws.

Radical legislation affecting employers' liability for injuries to employes was adopted through the initiative. The new act wholly eliminates assumption of risk, negligence of the employe and the fellow servant doctrine as defense in actions for damages for personal injury instituted by employes against employers. Right of recovery in the event of death is extended to heirs not dependent on the employe.

**OTHER EVENTS.** On February 14 the jury in the case of Binger Hermann, former Congressman and Commissioner of the General Land Office, charged with land frauds, disagreed. Hermann was indicted in 1904 by United States Senator Mitchell, of Oregon, for alleged conspiracy to defraud the United States govern-

ment in the matter of public lands. Special investigators had discovered that the grossest frauds had been perpetrated, involving millions of acres of the public lands and something like \$15,000,000. It was charged that government lands had been granted under fictitious names. Hermann was subsequently indicted on the charge of destroying 35 copies of official letters in the records of the Land Office. On this indictment he was tried in Washington in 1907 and was acquitted. The other indictment was the one on which the jury disagreed as noted above. Francis J. Heney prosecuted in behalf of the government. Later in the year the case against Mr. Hermann was dropped by the United States government.

On December 28 the government brought suit against the Southern Oregon Company as successor to the Coos Bay Wagon Road Company for the recovery of 96,676 acres of land in southern Oregon. The value of the land is said to amount to millions of dollars. The government stipulated in the grant that the land was to be sold in tracts not greater than 160 acres to each person, and for a stipulated consideration. According to the Federal authorities all the land except 6983 acres was sold on June 22, 1875, to Joseph Miller, agent for Collis P. Huntington, Charles Crocker, Leland Stanford, and Mark Hopkins. It was further alleged that in an effort to clear the title from the cloud on it a mortgage to secure an alleged indebtedness was made to the Boston Safe Deposit Company in 1884. This indebtedness, the government claims, was fictitious and untrue, and the foreclosure of this mortgage was "with the intent and in the hope that the restrictions upon the sale and disposition of the granted lands might be defeated."

Construction of two railroads into a territory comprising about two-thirds of Oregon and lying east of the Cascade Mountains and south of the Columbia River attracted a large influx of home-seekers to the State. This territory, until now unserved by railways, has an area of about 42,000 square miles or in excess of that of the State of Ohio. Agriculture has begun to take the place of stock-raising to which this section has been devoted. The two railroads, one constructed jointly by the Northern Pacific and Great Northern Railways, and the other by the Harriman interests, parallel each other for 165 miles, following the Deschutes River the major portion of the way. About 110 miles of each railroad was nearly ready for operation at the beginning of the year.

In 1910 the Northern Pacific and Great Northern also acquired two electric railway systems, one extending south from Portland to Salem, the capital, and the other built westward from Portland about 14 miles. The former will build 200 miles of extensions in the Willamette Valley and the latter will be extended 75 miles to the coast at Tillamook Bay. The same interests have also purchased the Pacific & Eastern, a railroad of limited mileage in the Rogue River Valley in southern Oregon and will build the Central Oregon road across the Cascade Mountains to a connection. Surveys have been adopted by the Hill and Harriman systems for railroads east and west across the centre of the State but immediate construction has not been determined upon. The Harriman system had practically completed 98 miles of new railroad between Portland and Tillamook Bay, a section of the State

heretofore dependent on water transportation.

**STATE OFFICERS.** Governor, Oswald West, Democrat; Secretary of State, F. W. Benson, Republican; State Treasurer, Thomas B. Kay, Republican; Superintendent of Public Instruction, L. R. Alderman, Republican; Adjutant-General, W. E. Finzer, Democrat; Attorney-General, A. M. Crawford, Republican; Commissioner of Insurance, S. A. Kozier, Republican.

**SUPREME COURT.** Chief Justice, Robert Eakin; Justices, Thomas A. McBride, Frank A. Moore, Henry J. Bean and George H. Burnett; Clerk, J. C. Moreland—all Republicans.

**STATE LEGISLATURE, 1911:** Republicans, Senate, 27; House, 58; joint ballot, 85. Democrats, Senate, . . . ; House, 2; joint ballot, 5. Republican majority, House, 56; joint ballot, 80.

**ORGANIC CHEMISTRY.** See **CHEMISTRY.**  
**ORINOCO STEAMSHIP COMPANY CASE.**  
See **ARBITRATION, INTERNATIONAL.**

**ORNITHOLOGY. BIRD PROTECTION.** The Bureau of Biological Survey, United States Department of Agriculture, in a report issued May 21, 1910, stated that 469,090 birds were imported into the United States during the year 1909. Of this number 371,910 were canaries, but 37,511 were game birds. The report states that protection of non-game birds made great progress during the year, North Dakota and Oklahoma having passed model laws. On the Pacific coast a strong sentiment aided in the enforcement of the laws against the sale of bird plumage. The legislature of the State of New York, during its 1909-1910 session, passed a stringent law governing the sale of bird feathers and skins, which goes into effect on July 11, 1911. Under this law it will be illegal to sell aigrettes. The law protects egrets, and other plume bearing herons, gulls, terns, albatrosses, eagles, vultures, as well as all song or insectivorous birds. In an address by James Buckland, before the Royal Society of London, the statement was made that in Venezuela there had been a tremendous decrease in the number of white egrets killed in recent years, indicating that the birds are approaching extinction.

**STUDIES OF THE BLACK BILLED CUCKOO AND HOATZIN.** Herrick studied the nesting habits of the Black Billed Cuckoo, which, contrary to the habits of the European Cuckoo, builds its own nest and cares for its own young, there being no more of a parasite mode of life here than in the thrushes. When disturbed the cuckoo may transfer the eggs to a new nest, but this not true parasitism. The most remarkable feature possessed by the young bird is its climbing ability. It has strong grasping reflexes, and is able, shortly after birth, to hang by one toe from a limb, and even to draw itself up to a limb by this foot. Mr. and Mrs. Beebe published in 1910 a popular account of observations made earlier on the Hoatzin in Venezuela and British Guiana. It has long been known that the young of this bird climbs by means of the claw-like ends of the fingers which, it was supposed, were later so covered with feathers that the wings had no use as climbing organs. Mr. and Mrs. Beebe discovered that while, as a matter of fact, the wings are covered with feathers, they are nevertheless used as climbing organs, so that the feathers at the end are always frayed and broken. The birds are sedentary in their habits, apparently staying the year round in one tree, "ver-

itable feathered sloths." Beebe states that the crop of these birds has taken on the function of a gizzard. He also from observations made on the Motmot in captivity decided that the racket shape of the tail is not a self mutilation, for purposes of ornamentation, but that the barbs are very weak, and drop away when the bird is preening its feathers.

**OTHER EVENTS.** The Fifth International Ornithological Congress met in Berlin May 30 to June 4, under the presidency of Dr. Anton Reichenow. A gift by Mrs. Russell Sage of \$15,000 to the Audubon Society was announced in 1910. Early in 1910 a number of ornithologists agreed to offer the sum of \$1000 to be given in prizes for the discovery of the nesting site of the passenger pigeon in North America. No public announcement, however, was made of any awards under this head, and it is not probable that any nests were discovered.

The third edition of the *Check List* of the American Ornithologists' Union appeared in 1910. The list contains 802 species and 394 subspecies. Since it appeared to the editors wise strictly to apply the priority rule in the nomenclature many changes were made from the names given in previous editions.

**OSBORNE JUDGMENT.** See GREAT BRITAIN, *History*.

**OSBORNE, W. F.** See LITERATURE, ENGLISH AND AMERICAN, *Philosophy and Religion*.

**OSMIUM.** See ATOMIC WEIGHTS.

**OSMOTIC PRESSURE.** See CHEMISTRY.

**O'SULLIVAN, J. M.** See LITERATURE, ENGLISH AND AMERICAN, *Philosophy and Religion*.

**OUTDOOR RELIEF.** See CHARITY; GREAT BRITAIN.

**OVERSTREET, JESSE.** A former member of Congress, died May 27, 1910. He was born in Franklin, Johnson county, Ind., in 1859, and graduated at Franklin College in 1882. He was admitted to the bar in 1886 and from that time until 1896 practiced at Franklin. He then removed to Indianapolis. He was a member of Congress from 1895 to 1909. He was the author of the gold standard law passed by Congress in 1900 and his ability along financial lines and his keen perception of the needs of the country's financial system led to his being made a member of the National Monetary Commission, a place which he held when his last term in Congress expired. He served as secretary of the National Republican Congressional Committee from 1898 to 1904.

**OXYCHINOLIN SULPHATE.** See CHINOSOL.

**OXYGEN.** See ATOMIC WEIGHTS.

**OXYNTIN** is a compound of protein and hydrochloric acid, containing 5 per cent. of absolute hydrochloric acid in unstable combination. The drug is a dry, granular powder, readily miscible in water, and is prepared by combining hydrochloric acid with the albumen of fresh egg, desiccating the product at a low temperature and standardizing it to a uniform content of hydrochloric acid. Oxyntin is said to be a useful substitute for dilute hydrochloric acid in cases of dyspepsia where this element is lacking in the gastric juice. It is approximately one-half the strength of dilute hydrochloric acid U. S. P. and may be given dry upon the tongue or in capsules.

**OYSTER TRUST.** See TRUSTS.

**OZMUN, EDWARD HENRY.** An American public official, Consul-General at Constantinople, died December 8, 1910. He was born in Rochester, Minn., in 1857. He studied at the Universities of Michigan and Wisconsin and in 1881 was admitted to the bar, practicing in St. Paul from 1881 to 1897. From 1893 to 1897 he was a member of the Minnesota Senate and from the latter year until 1906 was Consul at Stuttgart, and was appointed to the Consul-Generalship at Constantinople in 1906. In the same year he was a member of the board to reorganize the Consular service. In 1907-8 he made journeys far into the interior of Asia Minor and in Syria, Palestine and Egypt, collecting data upon which government reports were published. He was well known as a lecturer on the diplomatic and Consular service.

**PACIFIC CABLE.** See CANADA.

**PAGE, THOMAS NELSON.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**PAGE BILL.** See PENOLOGY; JUVENILE COURTS; and PROSTITUTION.

**PAINE, ROBERT TREAT.** An American philanthropist, died August 11, 1910. He was born in Boston in 1835, the great-grandson of the signer of the Declaration of Independence for whom he was named. He graduated from Harvard College in 1855. He studied law and in 1859 was admitted to the bar. He ceased active practice in 1870. In 1884 he was elected a member of the Massachusetts House of Representatives and in the same year was nominated by the Democrats and Independents for Congress, but was defeated. He organized in 1879 the Wells Memorial Workingmen's Institute, of which he remained president until the time of his death. He was also president of the Workingmen's Coöperative Bank from 1886 to 1903 and of the Associated Charities of Boston from 1878 to 1907, after which he was made honorary vice-president. From 1891 to the time of his death he was head of the American Peace Society. With his wife, in 1900, he created a trust for charitable purposes, named the Robert Treat Paine Association, which they endowed with \$200,000. He was connected with many other charitable and philanthropic organizations in Boston and elsewhere.

**PAINTING.** Of the National Academy of Design's two exhibitions of 1910, that held in the spring was by all odds of the greater interest and importance. The prize awards in that display indicated a wide range of taste on the part of the jury. The Thomas B. Clarke prize for "the best American figure composition painted in the United States by an American citizen" went to Frederick A. Waugh for his "Buccaneers," representing a lively scrimmage aboard ship, with flashing swords, powder smoke and a scene of carnage. There was ample supply of movement, but the composition was confused by surplus of detail, much of it capital. Some of the figures were admirable in their suggestion of savage vitality. The Saltus medal fell to Douglas Volk for a group entitled "The Little Sister," two children happily treated in a golden tone. For the best landscape J. Francis Murphy's "In the Shadow of the Hills" received a first prize, the Inness gold medal, an award with which no one was disposed to quarrel. It was a picture full of quiet charm, with a group of trees and a green meadow, the whole simple as to composition and restful in color.

The Hallgarten prizes for the best three pictures painted by Americans under thirty-five years of age went to Gifford Beal, Louis D. Vaillant, and Charles Rosen. The winner of the Shaw Memorial prize for the best work by an American woman was awarded to Susan Watkins for an interior showing much Chinese porcelain, rugs and a polished floor, a delightful room to work or dream in.

Landscape was well represented by E. W. Redfield's "Old Bridge," W. E. Schofield's "Snow Clad Hills," E. H. Potthast's "New England Coast," Childe Hassam's "Moonlight on Kattegat," George Bellows's "Floating Ice," Ben Foster's "Summer Day," Bruce Crane's "Shadows of the Afternoon," and Robert H. Bisbet's "Summer." Not exactly landscape, but picturesque and effective was Mr. Colin Campbell Cooper's "Bowling Green—Snowstorm," with the skyscrapers of which Mr. Cooper makes a specialty, in a swirl of smoke and snow.

In portraiture, Ernest L. Blumenschein's "German Tragedian" was one of the noted pictures. In expression, pose, costume, the portrait was a triumph for the artist. This stout elderly gentleman, with his unctuous smile of contentment, his cigarette, his cane, his fur-lined coat, had his profession written all over him; it was one of the few portraits in which character stood out. A "Portrait Group" by the same artist calls only for mention. Sergeant Kendall's several portraits of children showed no particular growth in a style of work that is certainly popular and has unquestioned cleverness of handling. William M. Chase's portrait of Spencer Kellogg owed much of its interest to a porcelain jar, and Irving Wiles had a fairly clever portrait of Miss Alice Chase. Good portraits were contributed by Charles Hawthorne (one of the notable canvases of the show) and by Robert Henri, who showed his customary and somewhat affected dexterity. Other portraits worth mention were by F. Luis Mora, Robert MacCameron, Frank Fowler, Alden Weir, August Franzen, George Bellows, H. O. Tanner and John de Costa.

Symbolic decorations by Will H. Low, Richard Newton and Paul Chalfin were not important. Neither was H. O. Tanner's "The Holy Women." Smaller figure subjects were contributed by William J. Hay and J. Alden Weir.

The winter exhibition at the Academy brought up once more the urgent need for a larger gallery for New York City. So restricted was the space that no more than two pictures by one painter could be accepted. The most interesting exhibit of the Winter Academy was perhaps that of the four Winslow Homers, loaned by citizens and institutions. They were "Camp Fire," "The Coming Storm," "High Cliff," and "The West Wind," all of them familiar to admirers of the late artist. In two of them there is the elemental power and simplicity of the sea pieces which he loved to paint and in which his greatness affirmed itself so simply. The post of honor in the exhibition was held very rightly by John W. Alexander's vision of two pretty girls, entitled "A Summer Day," which had previously been seen in Philadelphia. It was a subtle bit of work with a lovely misty atmosphere and much grace in composition. The prizes were awarded as follows: The Carnegie prize for the most meritorious oil painting not a portrait went to William S. Robinson for his landscape "Golden Days"; the Thomas R.

Proctor prize for the best portrait to Douglas Volk's "Marion of Hewnooks"; the Isidor Memorial medal for the best figure composition to Kenyon Cox.

One of the important portraits in the exhibition was Edmund C. Tarbell's portrait of President Timothy Dwight, presented to Yale University by the class of 1891, a work of dignity and of credit to the artist. It was criticised as presenting the scholar with the head minimized in comparison with the figure, but upon the whole the impression made by the portrait was excellent. Mr. Douglas Volk's prize picture was almost pre-Raphaelite in its painstaking execution. Wilton Lockwood's portrait of Dr. J. W. Elliot was attractive in color and atmosphere, and Robert MacCameron's portrait of Joseph B. Thomas, Jr., was one of the creditable pictures. Sergeant Kendall's portrait of Dr. Pruden was fairly strong, but lacked atmosphere and failed to stand out from the background. A clever sketch, or perhaps more than that, by Irving R. Wiles, was "The Student," a pretty art worker getting her palette ready. William Funk's picture of the three rosy children of William R. Coe had a sturdy, Teutonic sort of vitality. Some excellent work in portraiture was also contributed by Lydia Field Emmet, Adelaide Cole Chase, William T. Smedley, Alphonse Jongers, W. H. Hyde, and Percival de Luce. Ben Ali Haggin's portrait of the dancer, Rita Sacchetto, previously shown with the "Independents," was a decidedly clever affair.

In landscape Mr. Robinson's prize picture, "Golden Days," showed an effective treatment of nature in its serene mood, a rare autumn day, with the American golden haze at its best. It was an ideal New England landscape, the glorification of autumn. Childe Hassam's "Summer Idyl" suggested the freshness of deep foliage in shadow. Arthur Hoeber's "Walnut Grove" was impressionistic, but not aggressively so. Harold Camp's "Young Summer Night" was noted for a beautiful sky and Ballard Williams had a Welsh mountain landscape. Ben Foster showed one of the best landscapes of the year, his "Afternoon at Longpré," a pool of water in the foreground with a group of tall spindly trees in the background, the whole admirable in atmosphere and full of delicate charm. "Harlem River at High Bridge," by Ernest Lawson held an important place and deserved it. The water was prismatic and the canvas seemed to live. The same painter's "Umbrellas at Coney Island" had cleverness as composition but was crude in its rendering of glaring light. Other notable landscapes were by A. L. Groll and C. W. Eaton.

Among the figure pictures Henry S. Hubbell's large painting of two women in yellow draperies before an open fire was good in tone but rather confused in composition, the figures seeming extraordinarily large for the canvas. Mr. Weir's child holding a cat was in his best vein and full of charm, a trifle mannered perhaps, but nevertheless delightful. Two pictures by Susan Watkins showed good taste and a faculty for using rich material to advantage. William M. Chase had an interior that allowed him full scope for his admirable faculty in still life painting. The canvas was low in tone with a dull red floor, a dull green curtain, bronzes, brasses, silks and metals all contributing to a rich whole. E. L. Henry in "One Hundred Years Ago" showed a steamboat-landing on the Hudson with



WINSLOW HOMER



JOHN LA FARGE

TWO FAMOUS AMERICAN ARTISTS WHO DIED IN 1910

100

scores of figures supposed to be historically accurate, and was fairly interesting as a study of earlier days while not impressive as art. Charles W. Hawthorne's "Refining Oil" was more remarkable for brilliant success in the painting of big glass jars than for the strength of the figures, vigorous as they are.

**WATER COLOR SOCIETY.** The forty-third annual exhibition of the Water Color Society opened in New York in April and had as its most conspicuous contribution John S. Sargent's portrait of William Butler Yeats, the Irish poet. F. Luis Mora, L. L. Kaula, who had a lovely head, entitled "Vanity"; C. C. Cooper, Henry Reuterdahl, R. M. Shurtleff, E. L. MacRae and Arthur B. Davies were among the artists well represented. One entire panel was given up to etchings by the late James D. Smillie, and there were several drawings by the late Frederic Remington. One room was devoted to magazine illustrations by such men as John La Farge, Joseph Pennell, Winslow Homer, Everett Shinn, John Slan and Wallace Morgan. The Evans prize of \$300 was awarded to R. M. Shurtleff for his picture entitled "June." The Water Color Club, which held its exhibition in October, had as its best pictures Rhoda Holmes Nichols's "Japanese Parasol," E. C. Volkert's "October Afternoon," Jerome Myer's "Street Carousel," Alexander Robinson's "Chioggia Boats," W. M. Post's "Early Spring," Frank Tenney-Johnson's "Sheep Herder," C. C. Cooper's "Laufenburg Bridge," and Charles Sarka's "Mahomet."

**INDEPENDENT ARTISTS.** A curiosity in the way of art exhibitions was the show held in New York by the Independent Artists. Nearly 300 paintings, some of them excellent, some of them merely grotesque experiments, were shown to the bewilderment of many visitors. Of Robert Henri's four paintings of interest and even technical brilliancy his "Salome Dancer" deserved first place; John Sloan's "Clown Making Up," Ben Ali Haggin's "Sacchetto," Ernest Lawson's "White Horse," "A Prize Fight," by George Bellows, a "Race Course Scene," by W. J. Glackens, "A Night Scene on the River," by Léon Dabo, were pictures that made the exhibit worth a visit. An exhibition of ten artists who show yearly as "The Ten" had a remarkably good picture by J. Alden Weir entitled "The Flower Girl," a dark haired child with a basket of blossoms. T. W. Dewing, W. L. Metcalfe, Robert Reid, E. S. Tarbell, and F. W. Benson were among those represented by canvases most of which had already been seen elsewhere.

**PENNSYLVANIA ACADEMY OF FINE ARTS.** The one hundred and fifth Annual Exhibition of the Pennsylvania Academy of Fine Arts was held in Philadelphia in January with 481 paintings and 112 sculptures, representing the work of 370 artists. The Temple gold medal for the best picture went to Howard G. Cushing for his portrait of a favorite and effective model. The Lippincott prize was awarded to J. Alden Weir for a landscape, "The Hunter's Moon," and Childe Hassam received the Sesnan gold medal for his "Summer Sea." The Mary Smith prize for the best picture painted by a Philadelphia woman went to Mrs. Alice Mumford Roberts. Among the pictures of note shown were Sargent's portrait of Joseph Pulitzer and that of the Philadelphia surgeon, Dr. J. William White. Mr. Chase's excellent portrait of James C. Carter, one of his best, appeared again. John W. Alex-

ander showed his portrait of Richard Watson Gilder and also some of his remarkable fish studies. Charles W. Hawthorne had a pair of his brawny fishermen already seen in New York, and Colin Campbell Cooper one of his skyscraper scenes. Portraits by George Bellows and Robert Henri, Susan Watkins's portrait of the artist, Maurer; Woolf's character study of an old news-dealer, Philip L. Hale's "La Princesse Lointaine," Alice K. Stoddard's portrait of a charming young woman, and Mary Cassatt's "Children Playing with a Cat," are all worth mention, but many of them had already been seen in New York and elsewhere.

At the Corcoran Exhibition in December in Washington the first prize of two thousand dollars was awarded to Edmund C. Tarbell for his picture entitled "Interior." The second prize went to Gari Melchers for his "Penelope," the third prize to Childe Hassam for "Springtime," and the fourth to Daniel Garber for "April Landscape." Among other pictures of note in the exhibition were Cecelia Beaux's portrait of Dr. W. H. Howell, Dean of John Hopkins Hospital; Hawthorne's strong picture of a young man and woman entitled "Youth," and a harbor scene in Boulogne by W. E. Schofield. Mr. E. W. Redfield had a vigorous snow picture and Melchers, in addition to his prize picture, showed some strong figures of working people in his picture entitled "The Smithy."

The Annual International Exhibition held yearly in the galleries of the Carnegie Institute in Pittsburgh was in 1910 of more than usual importance. William M. Chase is said to have pronounced it the finest collection of pictures ever hung in America. The first prize of \$1500 went to William Orpen of London for his "Portrait of an Artist"; the second prize to Karl Anderson of New York for his "Idlers"; the third prize to Edward F. Rook for a landscape. Honorable mention was awarded to Joseph Oppenheim, Berlin, Germany; Charles Morris Young, Jenkintown, Penn.; Daniel Garber, Lumberville, Penn., and Louis Betts, Chicago. Several pictures by Childe Hassam were highly effective. William M. Chase had an interior of remarkable felicity, which adjective can hardly be applied to the "Girl and Horse" of Irving R. Wiles. Neither was Miss Beaux particularly successful. Almost every American artist of note contributed something to the exhibition. Among the foreign pictures were Nicholas Fechin's portrait of Mlle. Lapojnikov, a work of marked strength and sincerity.

**FOREIGN EXHIBITIONS.** The two Salon Exhibitions of Paris, that of the Société des Beaux Arts and of the Artistes Français were held in usual, each with a display of several thousand pictures. In the Beaux Arts show were conspicuous Lucien Simon's "The Pursuit," and "The Bath." La Touche, Delacroix, Lévy-Dhurmer, Aman Jean, Cottet and Lhermitte were distinguished among the Frenchmen. Portraits by J. J. Shannon, an American by birth but an Englishman by adoption, were much praised. Among the American exhibitors whose work found favor were Myron Barlow, Alexander Harrison, Walter Gay and Julius H. Stuart. A vast canvas by Thévenot showed Blériot landing in his aeroplane at Dover in July, 1909.

At the Salon of the French Artists Jean Paul Laurens's "Surrender of Yorktown," painted for the Baltimore Courthouse, held an important

place. In the same genre was Eugène Chicot's "Peace," intended for the Peace Palace at The Hague. D  taille had a barricade fight of his customary merit. Paul Steck, Henri Delacroix, Jules Adler, Joseph Bail, Paul Chabas, and L  on Bonnat, all had pictures of note. Among the Americans who found a place were Seymour Thomas, Frank Boggs, Robert MacCameron, Mildred Copeland, Richard Miller, H. S. Hubbell, Augustus Koopman, H. O. Tanner, E. W. Redfield and Walter McEwen.

The American Woman's Art Association of Paris held an exhibition in which while there were some good pictures most of the canvases shown hardly ranked higher than studies. Anne Goldthwaite, president of the association, contributed a good interior and a portrait. The Boston artist, Mildred Copeland, showed her attractive study of a young woman entitled "Vanity." Other exhibitors were Maude Hunt Squire, Constance Bigelow, Alice McClure, Maude Murray and Anna Richardson. Miss Mary Cassatt held in March an exhibition of her own work that received praise from the French critics.

At the one hundred and forty-second exhibition of the London Royal Academy in April, Sir Edward Poynter's picture of King Edward in his robes of state attracted most attention. E. A. Abbey's "Pennsylvania's Treaty with the Indians" and "American Army at Valley Forge," both for the Pennsylvania State Capitol, were also conspicuous. Four small pictures were contributed by Sargent, and there were also a portrait by Cyrus Cuneo of San Francisco, and a fairly effective painting by W. B. Wollen of the "Fight on Lexington Common." "Aristocrats," by Frederic Roe, depicting an incident in the French Revolution; a portrait of Mrs. Cyprien Bridge by John Collier; Harland Fisher's "Old Rose Garden," a graceful girl watching doves in flight; and H. G. Riviere's portrait of Lady Bulough, were other pictures of note.

**PALESTINE.** See *ARCH  OLOGY*.

**PALISADE PARK.** See *NEW YORK*.

**PALLADIUM.** See *ATOMIC WEIGHTS*.

**PALMER, F.** See *LITERATURE, ENGLISH AND AMERICAN, Travel and Description*.

**PANAMA.** A republic occupying the Isthmus of Panama. The capital is Panama.

**AREA AND POPULATION.** The area is variously estimated at from 31,570 to 33,776 square miles. By the treaty of November 18, 1903, the United States guaranteed the independence of Panama, and the latter granted to the United States, in perpetuity and with sovereign rights therein, a strip of land (the Canal Zone) extending to a width of five miles on either side of the Panama Canal. The United States acquired also several small islands in the Bay of Panama. In 1909 the population was estimated at 419,029 (mostly a mixed race of Spanish, Indian, and negro origin); an estimate of 1910, however, puts the total as low as 361,000. The larger towns are: Panama, with estimated population of 43,819 on December 31, 1909; Col  n, about 18,000; David, 12,000; and Bocas del Toro, 10,000. Important sanitary improvements have been undertaken in the capital and especially Col  n. At the end of the year 1909-10, public schools numbered 238, with 14,305 pupils enrolled and 396 teachers. There are a few schools for secondary and technical education.

**PRODUCTION, COMMERCE, ETC.** The principal industry is the cultivation of bananas. Other

products, which are raised in small quantities, are sugar-cane, cacao, coffee, rice, corn, yams, and sweet potatoes. Efforts are being made to promote the production of sugar, for which the country is said to be excellently adapted. There are numerous mineral deposits, but mining is little developed.

In 1908 imports (exclusive of non-dutiable supplies for the Panama Canal) and exports were valued at \$7,806,812 and \$1,827,050 respectively; in 1909, \$8,756,308 and \$1,502,475. The principal classified imports in 1909 were: Vegetable products, \$2,251,767 (\$1,424,347 from United States); textiles, \$1,712,829; animal products, \$1,510,822 (\$1,044,884 from United States); mineral products, \$943,398; liquors, \$649,691. Of the imports, the value of \$4,996,627 came from the United States, \$1,762,411 from Great Britain; \$914,756 from Germany; \$297,352 from France, and \$210,426 from Italy. Of the exports, the United States received the value of \$1,264,906; Great Britain, \$142,174; and Germany, \$86,972. Of the exports to the United States, bananas amounted to \$853,419; rubber, \$109,821; cocoanuts, \$97,583; ivory nuts, \$74,618; hides, \$65,908.

The Panama Railway crosses the Isthmus from Col  n to Panama, 47 miles. The government has contracted (March 30, 1910) for the construction of a railway from Panama to David (274 miles). At end of 1909, telegraph offices, 32; post-offices, 96.

**FINANCE.** For the period January 1, 1909, to December 31, 1910, the estimated revenue and expenditure, as sanctioned by the legislature, were \$5,050,315 and \$6,877,470 respectively. The President, however, under legal authority, subsequently reduced the authorized expenditure to equal the estimated revenue. For 1909 the actual revenue, which is derived principally from customs and excise, was \$2,973,292. There is no public debt, and the government has upwards of \$7,500,000 invested. The unit of value is the gold balboa, equivalent to the American dollar.

**GOVERNMENT.** The executive authority is vested in a president elected by popular vote for four years and assisted by a cabinet of five members. The people do not elect a vice-president, but every two years the National Assembly names three *designados*, the first *designado* taking the place of the President in case of the latter's absence or disability. The Assembly is unicameral. The President for the term beginning October 1, 1908, was Jos   Domingo de Obald  a, who died March 1, 1910. The executive duties were assumed by Carlos Antonio Mendoza, the second *designado*, the first *designado* having died the previous year. The Assembly convened on September 1, 1910, and on the 14th elected as first *designado* Pablo Arosemena (inaugurated October 5), who thus became acting President for Obald  a's unexpired term. Second *designado* for the two years ending October 1, 1912, Federico Boyd. There is no army, but the government maintains a national police corps, which in 1909 numbered 1008 officers and men. The navy includes two armored gunboats and two auxiliary vessels. The seven provinces of the republic are administered by governors appointed by the President.

**HISTORY.** Criticism was caused by the reported remark of the American Charg   d'Affaires at Panama that if the Republic did not choose a vice-president agreeable to the United States, annexation would follow. The State Department



**"PORTRAIT OF A GERMAN TRAGEDIAN"**  
**BY ERNEST L. BLUMENSCH**

॥ ॥ ॥

ordered him to repudiate the interview, in which he was quoted as saying this and he afterwards expressed in person to the President of Panama his regret for having misunderstood his duty and offered an apology. He was later recalled. The United States government authoritatively denied that it contemplated annexation before the opening of the Panama Canal, pointing to the clause in the Hay-Varilla treaty declaring that the United States guarantees the independence of the Republic of Panama. On September 14 the Assembly, which was controlled by the Liberal party, voted almost unanimously for Pablo Arosemena as first vice-president (*designado*), to serve as acting president for the unexpired term (ending October 1, 1912) of the late President Obaldia. For second vice-president, Federico Boyd was chosen, and for third, Rodolfo Chiari. The estrangement between Panama and Colombia showed a prospect of coming to an end in 1910, when Panama sent Dr. Carlos Mendoza on a mission to Colombia, but the mission was later reported to be unsuccessful.

**PANAMA CANAL.** Work on the canal progressed steadily through 1910 without serious hindrances of any sort. The total amount of excavation and a comparison with the excavation of 1909 will be found in the accompanying table. The year was notable for the marked absence of criticism of the plans and performances of those in charge of the work. The movement, which originated in the latter part of 1908 and continued during the early part of 1909 against the lock canal, and for a water-level canal subsided, and there was no revival of this criticism in 1910. In November visits were made to the canal by President Taft and by a party of engineers representing the American Institute of Civil Engineers. The President expressed great satisfaction with the progress of the work and the engineers were equally favorable in their comments and expressed the opinion that from an engineering standpoint the work could not be improved.

The organization of the Isthmian Canal Commission remained the same during 1910, except that Hon. J. C. S. Blackburn, who resigned on December 4, 1909, was succeeded by Maurice H. Thatcher on April 12, 1910. By an executive order of April 16, 1910, the position of counsel and general attorney was created. Among minor changes made in the organization was the abolition of the mechanical division as it formerly existed, and the work formerly done by the division was distributed among the different shops in the Canal Zone. An inspector of shops was added to the organization with the duty of looking after the economical distribution of work among the different shops, the distribution of tools, besides the additional shop facilities and the adoption of standard shop methods. A standard wage scale for employes on the gold roll was adopted and put into effect. After its adoption the heads of departments and divisions fixed a maximum limit of pay for the various positions considered by them as necessary for the proper conduct of the work in their charge, and the pay of positions on the gold roll is now standardized, no variation being allowed except in cases where increased responsibilities and duties fall upon its occupant.

The work of the canal is divided into four divisions. The First Division, which is charged with the design of the locks, dams, regulating works and accessories, is in charge of Lt.-Col.

H. F. Hodges of the Corps of Engineers, U. S. Army. The Atlantic Division has charge of construction work, which is divided into four parts: First, that comprising the excavation of the channel between the Gatun locks and the Atlantic Ocean; second, the construction of the Gatun locks; third, the construction of the Gatun dam and spillway; and fourth, the municipal engineering work. This division is in charge of Lt. William L. Siebert, Corps of Engineers, U. S. Army. The work of the Central Division includes excavation in that part of the canal which embraces the entire extent of the former Culebra and Chagres sections of the Central Division. It is in this division that the greatest amount of excavation work is done. The division is in charge of Lt.-Col. D. D. Gailard of the Corps of Engineers, U. S. Army. The Pacific Division includes the excavation and construction for a distance of 11 miles from Pedro Miguel to deep water in the Pacific Ocean. It is divided into four districts: First, locks, dams and dry excavation; second, dredging, hydraulic excavation, Balboa shops and shopways; third, municipal and sanitary work; fourth, Ancon quarry. This division is in charge of S. B. Williamson.

**FIRST DIVISION.** During the year detailed drawings for the upper lock at Gatun and for the single lock at Pedro Miguel were made and the general features of the lower locks at Gatun and the lock flight at Miraflores were adopted. These general features include the use of intermediate gates in the middle and lower locks at Gatun, but of no intermediate gates at the lower lock of Miraflores. The south approach wall at Pedro Miguel was designed of massive concrete and the larger part of it is constructed. The northeast wing wall will also be of massive concrete, and reinforced concrete walls have been designed for the northwest, southeast and southwest wing walls in the same locality. During the year general and detailed drawings for all the gates required fully to equip the locks were completed and bids were issued. The lowest bid was that of the McClintic-Marshall Construction Company of Pittsburg, Pa. This was accepted and a contract made with this firm. The advertisement called for the erection complete of all the gates of the canal, 46 in number or 92 leaves, by January 1, 1914. The contractors bind themselves to complete the work by January 1, 1913. In the contract the work of erection at Gatun is to begin on January 1, 1911, and to be completed on February 1, 1913; at Pedro Miguel the work of erection is to begin March 1, 1911, and to be completed May 1, 1912; and at Miraflores work is to begin January 1, 1912, and to be completed June 1, 1913. Much study has been given by the engineers of the commission to the question of the machinery for operating the gate leaves. As the result, the recess in the wall into which the leaf fits when open was modified so as to admit of freer exit of water around the mitre post when the gate is near the position of rest, and a type of machine was adopted in which the force applied increases and the rate of motion decreases near the beginning and end of the movement. The machinery adopted consists of a rigid horizontal strut connected to the upper girder and the gate leaf. The other end of the strut is attached to a large horizontal gear wheel near its circumference. As the large gear wheels turn the effect of the strut is practically that of a crank pin on a connecting rod. The

rate of travel of the gate increases gradually from the beginning to a point just beyond the middle of the path between the recess and the mitre. After passing its maximum the rate gradually diminishes until just at mitring it becomes very small. It has been thought desirable to provide all the gate leaves with a positive lock which will hold them together against wave action and at the same time it has seemed possible to arrange a locking device which will force the gates to meet perfectly at the mitre, thereby reducing the care which is usually necessary in closing large lock gates to avoid a false mitre.

The general plan of the machinery to be used in the raising and lowering of the gates on the crest of the spillway dam at Gatun has been prepared. The machinery has been mounted in a tunnel in the main body of the dam for the purpose of protecting the parts of the machinery and the counterweights, this arrangement at the same time obviating the installation of cumbersome and heavy material on the foot bridge which extends over the gates. Designs have been prepared for an electric locomotive which, it is thought, will prove satisfactory to tow vessels through the locks and have full control of them from the time they approach until they are locked through to a point from which they can proceed under their own steam.

Investigation of the expenditure of water from Gatun Lake as affected by the design adopted for the locks was carried on during the year. The results indicate that during ordinary years there will be a surplus of water even during the dry season, and that the water supply of the worst known dry season for the last 19 years, that of 1908, will be sufficient to maintain through the canal an average daily number of passengers three or four times as great as the average number now passing through the Suez Canal.

**ATLANTIC DIVISION.** The work of excavating the locks was continued in 1910 by steam shovels and to some extent by dredges, resulting in the removal in lock chambers during the year of 3,965,699 cubic yards in the dry, and 435,178 cubic yards in the wet. In addition to this excavation there were removed 646,520 cubic yards of material in auxiliary work, including dredging in the French canal. The excavation in the upper locks was completed. The excavation for the lower locks, exclusive of the approach walls, was undertaken, and but 375,000 cubic yards remained to be removed at the close of the fiscal year. During the fiscal year there were laid in the Gatun locks 513,083 cubic yards of concrete. The total amount of concrete to be placed in the locks, including the approach and wing walls, is estimated at 2,046,100 cubic yards, so that the total amount remaining to be placed at the end of the fiscal year was 1,532,297 cubic yards. With a view to reducing the cost of concrete, instructions were issued to make arrangements to embed large stone, not less than one-man size, in the masses of concrete, which would amount to about 20 per cent. of the mass. This was begun in March, 1910, and up to the close of the fiscal year aggregated a total of 10,786 cubic yards.

At the Gatun Dam prior to January, 1910, the operations in the construction were practically limited to that portion between the locks in Spillway Hill. In the latter month it was decided that a larger amount of material for the toes of the dam should be procured from the Central Division, this supply to be utilized as long

as it could be economically furnished. At the close of the fiscal year the north and south toes of the portion of the dam east of Spillway Hill had reached an elevation of 65 feet above mean tide and the hydraulic fill between the toes an average elevation of 51 feet. West of Spillway Hill the north toe had been carried to an elevation of plus 30 feet and the south toe to an elevation of plus 35 feet. The total amount of material placed in the dam during the fiscal year was, dry fill, 2,577,234 cubic yards, and hydraulic fill, 2,933,175 cubic yards. Trestles aggregating 7486 cubic feet were constructed during the year. Excavation for the spillway was continued during the year, resulting in the removal of 127,210 cubic yards. The excavation for the foundation of the spillway dam was completed except at the extreme end and that for the curtain and side walls and for the floor was fully completed. By April 25 the side walls, floor and curtain walls were completed and the foundation of the dam sufficiently advanced to warrant turning the Chagres River through the spillway. Considerable time was lost owing to the excessive floods of November and December, 1909.

Excavation in the dry in the channel between the Gatun locks and the Atlantic Ocean was continued until November 20, 1909, when work was suspended due to the cut being filled by the high water in the Chagres River which had access to the French Canal. There were excavated in the dry, 991,572 cubic yards of earth, and 233,144 cubic yards of rock. The deepest part of the cut had reached a depth of 42 feet below sea level at the time work was suspended.

**CENTRAL DIVISION.** The work on this division embraces all the excavation between the Gatun dam and Pedro Miguel locks, including diversion channels, construction of the Naos Island breakwater, clearing of timber from the channel and anchorage basin, municipal improvements in the various settlements included within the division limits and such sanitary engineering work as is prescribed by the sanitary department. In this division is included the famous Culebra cut. The total excavation in this division during the fiscal year 1910 was 17,865,808 cubic yards, which was something more than 2,000,000 cubic yards less than the amount excavated in the fiscal year 1909. It is estimated by the engineers that the total amount to be excavated from this division is 38,309,475 cubic yards.

From the Culebra cut 14,921,750 cubic yards were excavated during the fiscal year, leaving 34,893,531 cubic yards to be removed in order to complete this section of the canal. This also includes an increase of 6,408,560 cubic yards over the estimate made in September, 1908. This increase is due to the widening of the canal north of Pedro Miguel lock so as to form a basin, and to allowance made for slides and breaks, as a number of new ones developed during the year and could not be foreseen when the estimates of 1908 were made. These slides and breaks are the chief obstacles with which the engineers have to contend in making the excavations in this cut. Four large slides occurred prior to 1910 and these made it necessary to remove over 1,000,000 additional cubic yards of excavation. Three bad breaks occurred during the fiscal year 1910. On the west bank of the canal at the town of Culebra the break covers an area of 10½ acres and during the fiscal year 1,500,388 cubic yards were



PANAMA CANAL. GENERAL VIEW OF UPPER LOCKS AND FOREBAY AT GATUN, LOOKING NORTH. JULY, 1910

34

removed. Another break occurred directly opposite this one, covering an area of  $11\frac{1}{2}$  acres on the east side of the canal. The third break was at La Pita Point and permitted the waters of the Obispo diversion to flow into the canal for a period of three days, drowning out some of the shovels that were at the north end. The total amount of material removed from all slides and breaks in this division during the fiscal year amounted to 2,649,563 cubic yards or about 15 per cent. of the amount removed from the Culebra cut. During the year floods seriously interfered with the progress of the work. The most serious of these occurred on December 26, 1909, overflowing the dike separating the cut from the Chagres River, cutting a channel through it about 200 feet long and 21 feet deep. During the year 17,749,306 cubic yards of material were deposited in various dumps. A considerable portion of this amount was dumped on the Panama Railroad relocation for filling trestles and for raising the embankment of the new line to the desired level. Work was continued during the year on the breakwater from Balboa toward Naos Island, with the object of cutting off silt-bearing currents from the excavated channel in the Pacific, thereby reducing the cost of maintenance and making navigation of the channel easier by protecting vessels from the existing cross currents. Prior to July 1, 1909, the trestle had been constructed for a distance of a little over 2 miles and during the fiscal year it was extended 1123 feet, giving a total length from the shore of 2.4 miles. The work so far accomplished has been of material benefit in securing the objects originally sought. The average cost of excavation for the year was 66.99 cents per cubic yard; including plant charges and division expenses.

**PACIFIC DIVISION.** The work in this division consists in the construction of the locks and dam at Pedro Miguel, the locks and dams at Miraflores, the Ancon quarry and excavating a channel between the locks and below Miraflores locks to deep water in the Pacific. The total amount of dry excavation in this division during the fiscal year was 1,269,865 cubic yards and the total amount of dredge excavation was 6,990,391 cubic yards. Work continued during the year in excavating the lock site at Pedro Miguel and the approaches thereto from the south. When the excavation on this point was nearly completed two slides occurred on the east side delaying the work and increasing the amount to be removed by 75,299 cubic yards of earth and rock. The laying of concrete began on April 4, 1910, and the total amount of concrete laid during the fiscal year was 166,869 cubic yards.

The west dam at Pedro Miguel consists of two mounds or toes of all classes of waste material, a large percentage being rock, with the intervening space filled with selected material forming an impervious core. The selected material is clay excavated from the canal prism and is deposited from sump cars in layers about 6 feet deep. In the fiscal year 51,827 cubic yards were added to the impervious portion and 41,964 cubic yards to the toes. The excavation for the upper locks of the flight at Miraflores was practically completed during the year and the work of preparing the foundations, erecting concrete plant, and placing concrete was begun. The total amount excavated was 234,731 cubic yards by steam shovels and 59,098 by hand, scrapers and cranes. The total amount of con-

crete laid during the year was 1630 cubic yards. The estimated amount of concrete in the locks, including approach and wing walls, was 1,327,300 cubic yards. A reinforced concrete power house at Miraflores was completed during the year at a total cost, including equipment, of \$486,096.

The west dam extended from the head of the locks to Cocoli Hill, consisting of two mounds or toes made up of waste material obtained from rock excavation, mostly rock, and of hydraulic fill between them, was continued during part of the fiscal year.

**LABOR.** The average number of gold employes and skilled laborers on the rolls of the Commission during the fiscal year was 4369 and on the Panama Railroad, 753, or a total of 5122. During the year there were 2890 separations from the service of the Commission and there were employed in the United States 1099, on the Isthmus 1092, and re-employments on the Isthmus 967, or a total of 3158, which indicates that more than 60 per cent. of the force was changed during the year. Laborers recruited during the year aggregated 2519. These were all West Indians, a large number from Barbados. The last recruiting was done in January, 1910, from which date immigration exceeded emigration. During the last four months of the fiscal year an immigration movement began from Europe and more than 200 laborers came from Spain and Italy of their own volition. From the beginning of the fiscal year there was a steady increase in the force until on March 30, 1910, a maximum of 38,676 was reached. This is the largest force on record in the history of the work on the canal. Following this date there was a slight decrease, but the total effective force on June 30, 1910, was 35,578, as compared with 33,493 on June 30, 1909. A number of new buildings were constructed during the year for the accommodation of gold employes and laborers. The total number of buildings in the Canal Zone owned by the Commission was, at the end of the fiscal year, 3078, of which 1147 were acquired by purchase from the French.

**ISTHMIAN CANAL ZONE.** On April 12, 1910, Maurice H. Thatcher was chosen head of the Department of Civil Administration to succeed Hon. J. C. S. Blackburn, resigned. No congressional legislation of importance affecting the Zone was passed during the year. Negotiations were carried on with the officials of the Republic of Panama which resulted in the adoption of sanitary regulations, the amendment of the agreement with Panama for the maintenance and operation of Santo Tomás Hospital, the maintenance of the insane of the Republic of Panama in commission hospitals, the verification of the survey of the Canal Zone boundaries and the enforcement of the executive decree of Panama prohibiting the recruitment of labor in the cities of Panama and Colón. A reorganization of the police department, by which the Zone was, for police purposes, divided into four districts co-extensive with the administration, became effective February 1, 1910. During the year 12 schools for white children and 12 for colored children were maintained.

**IMPROVEMENTS IN COLON AND PANAMA.** Municipal improvements continued to be made under the agreement between the United States government and the government of Panama for sanitary and other improvements in these cities. The amounts thus expended are to be refunded to

the United States at the end of a 50-year period from the collection of water rents. In Colon work was undertaken on the construction of a sewer at an estimated cost of \$136,000. In Panama streets were graded and macadamized, sewers and water mains were laid and concrete curbs and gutters were placed, making a total expense for improvements thus far undertaken of \$134,750.

**PANAMA RAILROAD.** The construction of a new line for the operation of the Panama Railroad was being done by the Panama Railroad Company under an agreement with the Commission. At the beginning of the fiscal year work was in progress along the entire stretch from Gatun to Gamboa, with the exception of 8 miles through the valley of the Gatun River. As canal construction contemplated the closing of the west reversion and discharging the Chagres River through the spillway, the elevation of the floor of which was placed 10 feet above sea level, work on the relocation during the year had to be arranged so as to give continuous communication at such times as the Panama Railroad is flooded. This made necessary the construction of several trestles. The material for embankments for the relocation was obtained from the excavation of the canal.

**COST OF THE CANAL.** The appropriations made by Congress for the Isthmian Canal available to the close of the fiscal year 1909 amounted to \$210,146,468, or 56 per cent. of the total estimated cost of the canal, which is fixed at \$375,201,000. On June 25, 1910, \$37,855,000 was appropriated for the fiscal year 1910-11, leaving \$127,199,531 of the estimated total cost of the canal to be appropriated. The total classified expenditures for canal work to June 30, 1910, was \$191,258,113, of which amount \$31,188,426 were the net expenditures for the fiscal year. Of the total expenditures to June 30, 1910, \$25,699,450 were for plant and equipment for construction work, of which \$4,388,511 were expended during the fiscal year. The expenditures for the fiscal year were distributed as follows: Department of Civil Administration, \$719,351; Department of Sanitation, \$1,803,040; Department of Construction and Engineering, \$26,300,166; General Items, \$2,866,088. The canal excavation to the end of 1910, including that done by the French companies and by the Americans, together with the excavation done in the several divisions, is shown in the following table:

CANAL EXCAVATION TO DECEMBER 31, 1910

By French Companies.....	78,146,960
French excavation useful to present Canal.....	29,908,000
By Americans—	
Dry excavation.....	78,413,516
Dredges.....	47,993,548
Total.....	126,407,064
May 4 to December 31, 1904.....	243,472
January 1 to December 31, 1905.....	1,799,227
January 1 to December 31, 1906.....	4,948,497
January 1 to December 31, 1907.....	15,765,290
January 1 to December 31, 1908.....	37,116,735
January 1 to December 31, 1909.....	35,096,166
January 1 to December 31, 1910.....	31,437,677

Totals by Divisions and Amount to be Excavated.

Divisions.	Amount excavated.	Remaining to be excavated
<i>Atlantic—</i>		
Dry excavation.....	7,650,258 }	622,796 }
Dredges.....	21,687,401 }	13,396,890 }
Total.....	29,337,659	14,019,686
<i>Central—</i>		
Culebra cut.....	56,905,933 }	27,280,791 }
All other points.....	10,886,922 }	2,051,372 }
Total.....	67,792,855	29,332,163
<i>Pacific—</i>		
Dry excavation.....	2,996,335 }	3,383,807 }
Dredges.....	26,280,215 }	9,395,046 }
Total.....	29,276,550	12,778,853
Grand totals.....	126,407,064	56,130,702

**PANAMA EXPOSITION.** See EXPOSITIONS.

**PANAMA LIBEL SUITS.** See UNITED STATES, *Administration*.

**PAN-AMERICAN CONFERENCE.** The fourth Pan-American Conference was held at Buenos Ayres July 12—August 30, 1910. Among the American delegates were former Ambassador to France, Henry White, Professor John Bassett Moore, Professor Paul Reinsch, Professor David Kinlay, Professor Bernard Moses, E. B. ~~sett Moore, Professor Paul S. Reinsch, Professor~~ Quintero, and Colonel Enoch Crowder. Many important questions were discussed, including the question of a steamship service between the United States and South America, Pan-American railway, an agreement concerning patents, trade marks and copyrights, proposals for interchange of university professors and the subject of sanitation.

It was decided by the Conference that it would be unwise to make a general declaration in support of the Monroe Doctrine and the subject was therefore not taken up by the Conference. A committee drafted a report on the proposed treaty calling for compulsory arbitration of the pecuniary claims of one nation against another. In the committee appointed to consider sanitary regulations for commerce there occurred some difference of opinion. Venezuela objected to the proposition supported by the United States and Cuba that the condition of ports of departure should be such as to satisfy the nation receiving shipments that in these ports there is no dangerous infectious or contagious disease. The representative of Venezuela complained that such requirements would attack the sovereignty of the country from which shipments were made. A delegate from Santo Domingo asked that the programme of the Conference be extended to permit declaration of the intentions of European, North American or South American powers with respect to domestic politics of any American nation. The Cuban delegates declared that the time for making such an extension was when the programme was arranged at Washington by representatives of the Republics. No action was taken on this suggestion. The national holiday of Argentina occurred during the session of the Conference, and Professor Paul S. Reinsch, of the United States delegation, made an address in Spanish, speaking for his country. The Conference also celebrated the anniversary of Peruvian



**GATUN LOCKS LOOKING SOUTH. END OF MIDDLE LOCK IN FOREGROUND**



**GATUN SPILLWAY LOOKING NORTH**

**PANAMA CANAL**

11701

independence. An address in Spanish was delivered by Professor Bernard Moses of the United States delegation. It was proposed that in recognition of Argentina's centenary, a building for a permanent Pan-American exposition be erected in Buenos Ayres, and that the cost of this be shared by all the republics.

It was decided that the International Bureau of the American Republics should hereafter be known as the Pan-American Union (q. v.). During the session of the Conference four conventions and twenty resolutions were passed. The conventions related to provisions for payment of pecuniary claims, and for the regulation of trade marks, copyrights and patents. They accord with instructions given to the American delegation by Secretary Knox before their departure. Among the matters considered by the congress were arrangements for the opening of the Panama Canal in 1915, and ways to establish better water communication between the countries.

**PAN-AMERICAN UNION.** An official institution under the support of the Republics of North, South and Central America, for the encouragement of Pan-American commerce, friendship and peace. Previous to the fourth Pan-American Conference (q. v.) this institution was known as the International Bureau of the American Republics. It was established in 1890 in accordance with resolutions passed at the first International Conference of American Republics, held at Washington, and it has been continued by succeeding conferences. The most important purpose of the Union is to develop commerce and trade, to promote better political relations, closer acquaintance and more intimate association among the American republics. In order to accomplish these results it keeps in close touch with the commercial affairs of the republics and publishes numerous handbooks, pamphlets and maps relating to them. Its most important publication is the *Bulletin of the Pan-American Union*, issued monthly, which contains a variety of information relating to commerce, finances and history of the American republics. In the July and August, 1910, numbers of the *Bulletin* there were included important and exhaustive summaries of the commerce of the various republics during the year 1909. In April, 1910, the handsome new building of the Union was dedicated at Washington. This building was erected as the result of a gift of \$750,000 from Mr. Andrew Carnegie, together with additional sums from the governments of the various republics. The director-general of the Union is John Barrett, and the secretary, Francisco J. Yanes.

**PANTOCHROMISM.** See **CHEMISTRY**, *Color of Dyestuffs*.

**PAPER.** The paper industry in 1910 experienced the effects of political discussions and proposed legislation and treaties by the United States and Canada. It was proposed that a reciprocity treaty be negotiated and one of the features of this would be the importation of paper or wood pulp duty free or at a low rate into the United States. This was demanded in the United States by those looking for cheaper paper and for the conservation of the forests and opposed by papermakers, while in Canada the manufacturers were demanding protection for raw materials and the conservation of the forests and water supply. The Canadian farmers were anxious for complete reciprocity and

the entire situation was awaiting solution at the end of the year.

So far as the paper trade itself in the United States was concerned, business was more satisfactory in 1910 as regards volume than in 1909, though it was considered far from ideal and a tendency towards overproduction was manifested, causing an unstable market. In the first half of the year water conditions upon which the paper industry is so dependent were favorable and as a result 94 3/10 per cent. of the normal output of writing paper was made and 98 per cent. shipped. In the second half of the year there was a lack of water and as shown in the production of writing paper, there was a decrease to but 87 per cent. of the normal output, with shipments of 85 per cent. In 1910 the actual daily production of writing paper was 500 tons, as compared with 429 tons in 1909. The book paper trade experienced an ordinary routine year, with a product aggregating 740,125 tons, as against 717,300 tons in 1909, a figure that was considered by many an overestimate. The normal increase in the production of book paper is stated at about 8 per cent. For 1911 it was announced that about a dozen new machines had been contracted for and this would increase the output by about 60,000 tons. In addition to the output of ordinary book paper there was the coated and enameled book paper, of which the output was about 180,000 tons. The production of "news" paper for 1910 was below the capacity of the plants on account of a strike of the International Paper Company's employes and the severe droughts in the latter half of the year. There was an increase in the amount of paper imported during the year, due to the lowering of the duty by the tariff act of 1909. The paper bag trade was reported as being in rather a demoralized condition during the year. White tissue stocks increased and the prices were lowered.

The business for the year with foreign countries showed an increase in the quantity of raw materials brought in to meet increased domestic demand for the finished product. New plants were built during the year, and while there was some drought in certain sections mills have been busy but conservative. At Water-vliet, Mich., a 136-inch Fourdrinier paper-making machine was installed in a new mill. This installation was unique in that it was able to make a roll of paper complete in 40 minutes.

The great Harmsworth combination, which controlled extensive wood supplies and pulp mills in Newfoundland, during the year were engaged in getting their English paper mills at Gravesend-on-the-Thames in readiness for work and other new mills in addition were being built, all to be finished in 1911. Two large machines for the manufacture of "news" paper were built during the year and were ready for installation in three weeks. The pulp from Newfoundland is transported directly to these mills and many interesting developments in the British trade are anticipated once they are in operation.

The Oji Paper Manufacturing Company at Tomakomai, Iburi province, Japan, completed its \$3,500,000 plant for the manufacture of book and "news" paper. It has a capacity of 350 feet of paper a minute 100 inches in width. Other paper plants were in course of construction during the year in Japan and considerable effect on the import trade was anticipated.

Climatic conditions in Chile are reported to be such that young trees grow twice as fast as in other wood-producing countries and in many sections the supply of good trees is extensive. A French combination was endeavoring to secure a concession near Lake Chapo and there erect a pulp mill to supply wood pulp for export to Europe and the United States. Later they proposed to build a paper mill and compete in the markets of South America, which is now a large importer of American and European paper. Japanese in Tieling, Manchuria, have undertaken the manufacture of pulp from millet, which grows in abundance in this country and a large acreage has been planted for an experiment.

The use of India paper for reference books received an impetus during the year when contracts were placed in Europe for 2000 tons of this paper the amount being distributed among a number of mills, though only a few are able to supply the product, the annual output of which ordinarily is only about 200 tons, used mainly for Bibles and small books. The manufacture is a long and lengthy process. See **CHEMISTRY, INDUSTRIAL**.

**PAPER BOARD ASSOCIATION.** See **TRUSTS**.

**PAPUA, TERRITORY OF.** A British possession, a dependency of the Commonwealth of Australia, made up of the southeastern portion of the island of New Guinea and the Trobriand, Woodlark, D'Entrecasteaux, and Louisiade groups of islands. Total area, 90,540 square miles (87,786 mainland, 2754 all islands). The foreign white population (census of June 30, 1908) numbered 711; colored, 511. The native population is placed at 500,000; but large areas of the hinterland remain unexplored and no estimate of their population is possible. Capital, Port Moresby. On March 31, 1909, there were 130 European plantations, with a total planted area of 7740 acres, divided as follows: 5365 acres in cocoanuts, 1702 in rubber, 382 in sisal-hemp, 180 in coffee, 111 in other economic plants. These figures are exclusive of grains, etc. The ordinance compelling the natives to plant cocoanuts for their own use is being generally enforced with good results, and the total acreage planted up to 1909 was estimated at 350,000, with about 100 trees to the acre. Sugar-cane, tobacco, ginger, bamboos, tropical fruits, and valuable timbers are indigenous, and cacao, cotton, vanilla, tea, etc., are being grown at the government experiment stations. Total livestock (June 30, 1909), 1519. The gold mines employed (1908-9) 102 white and 969 colored miners, and yielded 14,710 ounces, valued at £51,108. The highest value obtained was in 1899-1900—£89,075. The Astrolabe copper field exported (1908-9) 67 cwt., value £1341. Lead, mercury, graphite, osmiridium, zinc, and sulphur occur. Pearls, *bêche-de-mer*, tortoise-shell, and sandalwood are produced for export. Total imports (1907-8), £94,061 (foodstuffs, £33,440; hardware and ironmongery, £10,774; clothing, £9300; tobacco and cigars, £7653; liquors, £2297); exports, £80,616 (gold, £52,837; copra, £7515; sandalwood, £6346; natural history specimens, £3661; pearls, £3310; copper ore, £2479; *bêche-de-mer*, £1069; rubber, £483). In 1908-9 the imports and exports were valued at £94,680 and £79,691 respectively. Port Moresby, Daru, Samarai, and Bonagai are the ports of entry, at which entered and cleared in 1907-8, 263 vessels,

of 183,772 tons. There are 1247 miles of cart roads and horse and pedestrian tracks. Revenue (1908-9), £27,706; expenditure, £51,824; 1909-10, £35,918 and £64,873. Grant, 1908-9, £23,000; 1909-10, £26,000. Lieutenant-governor (1910), J. H. P. Murray; administrator, commissioner for lands and surveys, etc., M. Staniforth Smith.

**PAPUANS.** See **ANTHROPOLOGY AND ETHNOLOGY**.

**PAPYRUS.** See **ARCHÆOLOGY**.

**PARAGUAY.** An interior republic of South America. The capital is Asunción.

**AREA AND POPULATION.** The area has been estimated at 97,722 square miles, but it cannot be positively determined until the settlement of the boundary dispute with Bolivia. On December 31, 1908, the estimated population was 715,841, mostly a mixture of Spanish, Guarani Indian, and negro origin. The larger towns are: Asunción, with upwards of 60,000 inhabitants; Villa Rica, 30,000; Concepción, 25,000; Carapegua, 13,000. Immigration, 1906-7, 1226; 1907-8, 1024.

Primary instruction is free and compulsory. The reported number of public primary schools at the beginning of 1909 was 344, with 40,605 pupils and 756 teachers. In addition there were between 2000 and 3000 pupils in private schools. The University of Asunción has about 200 students. The state religion is Roman Catholicism, but religious toleration prevails.

**PRODUCTION AND COMMERCE.** The greater part of the soil has been alienated to capitalists, syndicates, and foreign bondholders. Agriculture is not greatly developed, but livestock raising has become important. Livestock in 1908: Cattle, 5,500,000; horses, 182,790; mules and asses, 7626; goats, 32,334; swine, 23,900. Of the crops, yerba maté, tobacco, and oranges are commercially the most important. Annual production of maté, about 17,600,000 pounds; tobacco, about 6,000,000. Other products are corn, alfalfa, beans, cotton, manioc and various fruits. The quebracho tree affords a profitable industry; estimated yield of quebracho extract in 1908, 15,000 tons, valued at 1,275,000 pesos (gold).

Imports and exports have been valued as follows, in thousands of pesos (the gold peso is equivalent to the Argentine peso, worth 96.5 cents):

	1906	1907	1908	1909
Imports .....	6,267	7,513	4,073	3,789
Exports .....	2,695	3,237	3,732	5,137

The foregoing figures show a notable increase in exports and the return of imports to a normal amount. The principal imports are foodstuffs, textiles, hardware, and liquors. The leading exports are livestock products (about 40 per cent. in 1908), tobacco, maté, quebracho extract and wood, and oranges. Of the imports in 1908, 29 per cent. came from Germany, 21 from Great Britain, 19 from Argentina, 9 from France, and 7 from Italy; of the exports, 52 per cent. went to Argentina, 25 to Germany, and 15 to Uruguay.

**COMMUNICATIONS.** A railway is in operation from Asunción to Pirapó, 155 miles. An extension of about 78 miles to Villa Encarnación was expected to be finished in 1911. Encarnación is on the Paraná River, opposite the Argentine town Posadas, to which a line was opened August 16, 1910. There was thus the probability of rail communication (excepting



1941

1941

Paraná ferry) between Asunción and Buenos Ayres in 1911. At present the Paraguay and Paraná rivers are the principal means of transportation. Telegraph, over 60 offices, with nearly 2500 miles of line, connecting with the Argentine system. Post-offices (1909), 383. In 1909, there entered the port of Asunción 969 steamers (mostly Argentine and Brazilian), of 256,654 tons, and cleared 1017, of 248,660 tons.

**FINANCE.** For 1908, revenue is stated at 1,771,680 pesos gold and 6,291,926 pesos paper; expenditure, 567,636 gold and 28,327,337 paper. Of the revenue, import duties represented 1,077,811 pesos gold; property tax, 1,941,956 paper; stamps, 1,688,723 paper. According to the budget, the revenue for 1910 was computed at 1,771,000 pesos gold and 6,236,000 paper; expenditure, 710,552 gold and 27,094,943 paper. The gold peso coincides in value with the Argentine peso, 96.5 cents. In recent years, the gold premium has fluctuated greatly; in 1906 it was about 1000 and in 1909 it varied from about 1300 to nearly 1700. The English funded debt December 31, 1909, was 4,018,218 pesos gold; floating debt, 750,000 gold; paper money (1908), 35,000,000 pesos.

**ARMY.** Although every citizen between the ages of 20 and 25 is liable to military service, only a small standing army is maintained, numbering about 1500 men, though nominally about 100 officers and 2500 men. It is formed into 4 battalions of infantry, 6 squadrons of cavalry, 5 batteries of field artillery, 2 machine-gun sections and 1 battalion of coast artillery.

**GOVERNMENT.** The executive authority is vested in a president, elected indirectly for four years, and assisted by a cabinet of five members. The legislative power devolves upon a congress of two houses, the Senate and the Chamber of Deputies. For the term ending in 1910, Gen. Benigno Ferreira was elected, but, as a result of the revolutionary movement of 1908, was superseded by the Vice-President, Emiliano González Navero. In 1910 Manuel Gondra and Juan Gaona were elected President and Vice-President respectively for the term ending in 1914, and were inaugurated in December.

**PARALYSIS, INFANTILE.** See **INFANTILE SPINAL PARALYSIS.**

**PARIS SALON.** See **PAINTING.**

**PARLOW, KATHLEEN.** See **MUSIC.**

**PAROLE SYSTEM.** See **PENOLOGY.**

**PARR, RICHARD.** See **TRUSTS.**

**PARTICLES, DEVIATION OF.** See **PHYSICS.**

**PATRIDGE, ANTHONY.** See **LITERATURE, ENGLISH AND AMERICAN, Fiction.**

**PARTY DESIGNATIONS.** See **NOMINATION REFORM.**

**PASSENGER FARES.** See **RAILWAYS.**

**PASTEURIZATION.** See **DAIRYING.**

**PATENTS.** See **UNITED STATES.**

**PATERSON, N. J.** See **SILK.**

**PATERSON, WILLIAM.** See **CANADA, Government and History.**

**PATRIOTIC SOCIETIES.** Organizations which have as their objects the preservation of the records of important historical events and especially of the wars in which the United States has participated; the encouragement of love of country, the saving and restoration of historical sites and objects, the celebration of anniversaries and historic events and the fostering of fraternal feeling and intercourse among the veterans. The most important soci-

eties of this nature, including societies of men and women, with the date of their foundation and their membership in 1910, when it could be ascertained, are noted in the table below:

	Founded	Members 1910
Army and Navy Medal of Honor Legion		458
Army and Navy Unions	1888	
Army of the Tennessee Association	1902	
Aztec Club of 1847	1847	228
Colonial Dames of America	1890	6,000
Daughters of the American Revolution	1890	60,250
Daughters of the Revolution	1891	
Daughters of Veterans	1885	
Imperial Order of the Dragon	1908	
Military Order of Foreign Wars	1894	
Military Order of the Loyal Legion	1865	8,902
Military Order of the Medal of Honor	1910	
National Association of Naval Veterans	1887	5,000
National Society of Army of Philippines	1900	
National Society Daughters of 1812		
Naval and Military Order Spanish American War	1899	
Naval Order of the United States	1890	
Navy League of the United States	1903	
Order of Founders & Patriots of America	1896	
Order of Indian Wars of the U.S.	1896	
Second Army Corps Association	1909	
Society of American Officers	1910	
Society of the Army of the Cumberland	1868	
Society of the Army of the Ohio	1903	
Society of the Army of the Potomac	1869	
Society of the Cincinnati	1783	842
Society of Colonial Wars	1892	
Society of the War of 1812	1814	
Sons of the American Revolution	1906	12,500
Sons of the Revolution	1876	7,560
Sons of Veterans	1879	50,000
Thirteenth Army Corps Association	1889	
Union Society of the Civil War	1909	
Union Veteran Legion	1884	20,000
United Confederate Veterans	1889	55,000
United Daughters of the Confederacy	1894	80,000
United Sons of Confederate Veterans	1896	
United Spanish War Veterans	1904	
Grand Army of the Republic	1866	213,901

**PATTERSON, EDWARD.** An American jurist, died January 28, 1910. He was born in New York City in 1839, and his early education was received in Philadelphia. He pursued law studies in New York City and was admitted to the bar in 1860. He soon built up a profitable practice and was engaged in many prominent cases. In 1884 he was candidate for judge of the Court of Common Pleas of the State of New York, but was defeated. In 1887, however, he was elected to the Supreme Court bench of the State and was elected in 1900 to succeed himself. At the time of his death he was presiding justice in the First Department of the New York Supreme Court.

**PATTERSON, ROBERT WILSON.** American editor and newspaper publisher, died April 3, 1910. He was born at Chicago in 1850 and graduated from Williams College in 1871. He began the study of law in Chicago and after the great fire became reporter on the *Chicago Times*. He was later on the staff of *The Interior*. He became connected with the *Chicago Tribune* in 1873 and was successively assistant night editor, Washington correspondent, editorial writer, managing editor, and editor-in-chief of this paper. He was also president of the Chicago Tribune Company.

**PAULIN, C. O.** See **LITERATURE, ENGLISH AND AMERICAN, Biography.**

**PAUPERISM.** See **GREAT BRITAIN, History.**

**PAVEMENTS AND ROADS.** For city pavements, stone blocks, brick, asphalt and wood blocks continue to be used in accordance with local conditions of street travel, of nearness or

remoteness to points of production, of relative prices, and of preferences on the part of city officials and of property owners. Rectangular wood blocks, treated with preservatives against decay, are perhaps extending in relative use more rapidly than the three other forms of pavements just named. Brick is still widely and increasingly used near the centres of paving-brick production, particularly in the North Central States. Bituminous concrete, generally composed of refined-gas tar and broken stone, but sometimes with asphalt in place of tar, occupies a place intermediate between sheet asphalt and dust-and-water-bound broken stone or macadam. Tar is also widely and asphalt less generally used as a binder for macadam roads in place of stone dust or clay and water, the tar being sprayed onto the successive layers of broken stone. The use of the bituminous binders in broken-stone road construction has been greatly accelerated by motor vehicles, particularly heavy, high-speed cars. To keep down dust on old-style macadam roads, tar-spraying and tar-painting are used. Heavy asphaltic petroleum oils are also widely used to lay dust on both macadam and dirt roads; likewise in the construction or improvement of dirt and gravel roads. These oils are more extensively used in California and the Southwest and West than in the East, on account of heavy freight charges from the California and Southwestern oil fields to the East.

Pavement and road problems were the subject of a number of important conferences in 1910. In February, engineers in charge of city pavements met in Chicago, considered standard specifications for pavements at length and in much detail, adopted tentative specifications and appointed committees to consider the various topics further and to report to a second conference, to be held in New York City, in January, 1911. Later in 1910, State highway commissioners and engineers met in conference over road problems, and in December an American Good Roads Congress was held at Indianapolis. A large portion of the time of the annual convention of the American Society of Municipal Improvements, held at Erie, Pa., October, 1910, was devoted to pavement specifications and construction. The event of the year was the Second International Roads Congress, held at Brussels, Belgium, in August. The first Congress was held at Paris in 1908. As an outgrowth, a Permanent International Roads Commission was created, with headquarters at Paris. This Commission arranged for the Brussels Conference, at which 117 papers, on nearly all phases of road and pavement construction, were presented. The papers were printed in advance, in French, German and English. They centred around nine "questions," or main topics. All the papers in each group were summarized by a "reviewer," who presented "conclusions" to the Conference for discussion and adoption or amendment. The "Final Conclusions" embodied the consensus of opinion of engineers from all parts of the world, in so far as such opinion could be crystallized and agreed upon by such an assemblage. Among the conclusions adopted by the Conference were resolutions favoring the further development and use of tar and other bituminous materials as binders for broken-stone roads, and a recommendation looking to the use of stone blocks for city pavements, where noise is not objectionable and neither wood nor asphalt admissi-

ble. The use of stone blocks of regular size, laid with close joints, was advised. A third international road conference will be held in 1913, presumably in London, but possibly somewhere in the United States, although the failure of either the general government or any of our State governments to join the other nations of the world in the financial support of the Permanent Road Commission tends to work against holding a congress in this country.

**PAIXON, F. L.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**PAYNE, W. M.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**PAYNE-ALDRICH TARIFF BILL.** See TARIFF.

**PEABODY, JOSEPHINE PRESTON.** See DRAMA AND LITERATURE, ENGLISH AND AMERICAN, *Poetry and Drama*.

**PEABODY EDUCATIONAL FUND.** See EDUCATION.

**PEABODY MUSEUM OF HARVARD UNIVERSITY.** An institution for anthropological and archaeological research, founded in 1866 by George Peabody, who gave \$150,000 for that purpose and for a professorship in Harvard University, which has become the anthropological section of the University Museum. The Museum has carried on work during 1910 in Guatemala under the direction of Dr. A. M. Tozzer. This expedition returned in May, 1910, having accomplished important results. Another expedition to Guatemala with Raymond E. Merwin as field director, started November 4, 1910, to continue the work in that region. During the year the Museum has published and issued to about 400 exchanges one Memoir and two Papers on the archaeology, hieroglyphs and picture writing of Central America. In November, 1910, the Museum was endowed with a new fund to be entitled the Mary Hemenway Fund for archaeology. This was received from the estate of Mary Hemenway. The officers of the Museum in 1910 were Abbott Lawrence Lowell, President; Frederic W. Putnam, honorary curator; Roland B. Dixon, librarian, and Frances H. Mead, Secretary.

**PEACE, PROMOTION OF.** See ARBITRATION, INTERNATIONAL.

**PEACE SOCIETIES.** See ARBITRATION, INTERNATIONAL.

**PEAK, JOHN L.** An American diplomat, died September 24, 1910. He was born in Scott county, Ky., in 1839, and graduated from Georgetown College in 1858. He studied law and graduated from the Louisville Law School in 1860. From 1870 to the time of his death he practised law in Kansas City, Mo., and was at one time prosecuting attorney of Jackson county. From 1895 to 1897 he was United States Minister to Switzerland.

**PEARY, ROBERT EDWIN.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**PEASE, J. A.** See GREAT BRITAIN, *Government*.

**PEET, T. E.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**PEILE, JOHN.** An English scholar and educator, died October 9, 1910. He was born in 1838 at Whitehaven, Cumberland. He was educated at Christ's College, Cambridge, where he took high rank. He early made a reputation by his *Introduction to Greek and Latin Etymology*, which was published in 1869. It represented great advance in the study of compara-

tive philology. He afterward popularized the elements of philology in a small primer, which had a wide circulation. He was appointed university reader in philology in Christ's College in 1884 and became vice-chancellor in 1891. On the death of Dr. Swainson in 1887 he became the first lay Master of Christ's College. He performed a great part in the reform and development of the university and for 33 years was a member of the Council of the Senate. During his mastership a large block of new buildings was erected at Christ's College, and a considerable addition has since been made in commemoration of the quarter centenary of the Lady Margaret's foundation of the college. The college library was also reconstructed and enlarged. Among his publications, in addition to those mentioned above, were *Notes to Tale of Nala* (Sanskrit) (1881), and *History of Christ's College* (1900).

**PEIXOTTO, E. C.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**PELLAGRA.** According to the bulletin of the Census Bureau, in 1909 there were 116 deaths in the United States from this disease, as against 23 in 1908. The actual mortality is probably much higher than this, since the registration area comprises only a small portion of the area of its occurrence. The finding of so many cases in the Southern States within the past few years has stimulated interest in the United States, but the disease was studied still more attentively in Austria and Italy, where pellagra is widely prevalent. While there seems to be no doubt as to the relationship between the eating of damaged maize and pellagra, yet this theory does not always square with facts observed, and other factors must be sought for to explain its occurrence. Raubitschek in the Laboratory at Czernowitz carried on extensive experimental work to determine the value of the various theories in regard to the origin of pellagra. He believes that none of the theories at present in vogue is correct. His researches seem to indicate that beriberi and pellagra are the result of some toxic substance in rice and corn, which does not become active unless sensitized by direct sunlight. Laboratory animals fed exclusively on corn or rice remained healthy as long as they were protected from direct sunlight, but on exposure soon became emaciated and developed paralysis, and died in from one to three weeks. Other animals, removed from the light soon after the onset of the disease, rapidly recovered. Again, white animals fed on buckwheat remained healthy while kept in the dark and died when exposed to the sun. Dark-colored animals, on the contrary, did not suffer in this way. The bearing of these observations upon pellagra is shown, when it is considered that symptoms develop in summer with special vigor, and that the skin lesions are almost exclusively confined to the areas exposed to the sunlight. Raubitschek therefore explains pellagra as due to a toxin which develops in the parts of the skin exposed to the sun from the action of chemical rays on the fatty alcohol soluble element in corn.

Verney, an Italian investigator, marshals the facts in favor of the theory of a specific microbic infection as a cause for pellagra. He points out that cases occur in individuals who have never eaten corn (Neusser and Antonini, however, discovered that some patients drank brandy made from damaged maize) and that the disease per-

sists unmodified after corn is eliminated from the diet. No other intoxication, he says, is known, which does not improve when the source of poisoning is withdrawn. The existence of chronic, acute and fulminating cases of pellagra harmonizes better with our conception of germ infection than with an intoxication. Even admitting that occasionally the symptoms may be the result of a superimposed malaria, typhoid or meningitis, he believes that the evidence points to a protozoan infection. The toxic and the infective theories do not conflict, but reinforce each other. The digestive disturbances induced by a diet of spoiled corn, and the consequent lowered resistance, pave the way for the development of the specific microbic infection. Still another theory is advanced by Sambon, as a result of investigations in several districts in Italy. Sambon believes that pellagra is an insect-borne disease and that the sand-fly is responsible for its dissemination. He did not discover any parasite, but suggests a parallelism between yellow fever and pellagra. No doubt exists as to the microbic character of yellow fever and of its dissemination by mosquitoes, and yet no specific parasite has been discovered. (See INSECTS AND THE PROPAGATION OF DISEASE.) The Austrian government has taken practical steps to stop the progress of pellagra, by the erection of six modern steam rye bakeries, which are under close supervision and the product of which is sold at a fixed price, in order to popularize the rye bread and stop the use of infected corn meal as a popular food.

**PENANG.** See STRAITS SETTLEMENTS.

**PENTLAND, Lord.** See GREAT BRITAIN, *Government*.

**PEND OREILLE BRIDGE.** See BRIDGES.

**PENITENTIARIES.** See PENOLOGY.

**PENNSYLVANIA.** One of the Middle Atlantic Division of the United States. It has an area of 45,126 square miles. Its capital is Harrisburg.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 7,665,111, as compared with 6,302,115 in 1900 and 5,258,113 in 1890. The increase in the decade 1900 to 1910 was 21.6 per cent. The State ranks second in point of population, the same relative rank which it held in 1900. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** Pennsylvania surpasses every other State in the value of its mineral products. Its coal includes practically 50 per cent. of the coal mined in the United States. The total production in 1909 was 137,845,815 short tons of bituminous and 80,658,049 short tons of anthracite. The bituminous production was considerably larger than that of 1908, which was 117,179,527 short tons. The production of anthracite, however, fell off. There were produced in 1908 83,268,754 tons. The production of bituminous coal in 1910, according to the estimates of the United States Geological Survey, showed a considerable increase over that of 1909. The different fields were variously affected during the year. In the western part, particularly in Allegheny and Washington counties, the production was stimulated almost beyond that of any previous year. On the other hand, in the Connellsville coking-coal district, the production of 1910 was not materially different from that of the preceding year, although

indications are that it was slightly increased. In the Clearfield or central Pennsylvania district, conditions were unsatisfactory. The increased production in the western counties was due chiefly to the idleness of six months caused by the strike in the Mississippi Valley States and to an unusually large amount of coal shipped to the Upper Lake markets during the summer. The production of anthracite coal was estimated at 64,374,200 tons. The statistics for the last few years indicate that no decided increase in the production of anthracite coal is to be expected. Anthracite is becoming more and more a luxury and this tendency will continue to be more pronounced until the mines are exhausted. It is now almost entirely marketed for domestic use in the Eastern States. In the manufacture of coke Pennsylvania stands first among the States. The quantity produced in 1908, the latest year for which statistics are available, was 15,511,634 short tons, which was considerably more than half the total production of the country. This, however, was a decided falling off from the production of 1907, largely as a result of the financial depression throughout the country. The production of petroleum has steadily increased since 1896. There were produced in 1909 1,134,897 barrels, as compared with 1,160,128 barrels in 1908. The petroleum developments during the year were generally limited to well-defined oil-producing regions. The estimates of the United States Geological Survey indicate a still diminished production in 1910. The price of oil declined from \$1.43 a barrel at the beginning of the year to \$1.30 in June, remaining at this figure to the end of the year. Pennsylvania is first among the States in the production and value of cement. There were produced in 1909 20,923,606 barrels, valued at \$14,746,755, as compared with 18,254,806 barrels, valued at \$13,899,807 in 1908. There were 21 plants producing Portland cement in 1909. Other important mineral products are slate, coal products, sand and gravel, iron ores, salt and tale.

**AGRICULTURE.** The acreage, production and value of leading crops in 1909 and 1910 are given in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	1,586,000	65,026,000	\$38,365,000
1909.....	1,525,000	48,800,000	34,160,000
Winter wheat 1910	1,556,000	27,697,000	25,481,000
1909.....	1,545,000	26,265,000	28,629,000
Oats, 1910.....	998,000	35,130,000	14,403,000
1909.....	998,000	25,948,000	12,974,000
Barley, 1910.....	9,000	238,000	150,000
1909.....	9,000	196,000	131,000
Rye 1910.....	380,000	6,460,000	4,716,000
1909.....	360,000	5,508,000	4,406,000
Buckwheat, 1910.	290,000	5,655,000	3,506,000
1909.....	290,000	5,655,000	3,845,000
Potatoes, 1910.....	320,000	28,160,000	14,643,000
1909.....	305,000	23,790,000	15,464,000
Hay, 1910.....	3,212,000	4,433,000a	66,495,000
1909.....	3,118,000	3,732,000	54,633,000
Tobacco, 1910.....	33,000	49,500,000b	4,603,500
1909.....	31,200	30,732,000	2,765,080

a Tons. b Pounds.

#### POLITICS AND GOVERNMENT

The State legislature was not in session in 1910, as the sessions are biennial and the last was held in 1909. The next session meets January 3, 1911.

**CONVENTIONS AND ELECTIONS.** Dissensions in the Republican party in the State and the general feeling of possible Democratic success in the November election compelled the Repub-

licans to seek for the strongest possible candidate for governor. A strong effort was made to induce Philander C. Knox, Secretary of State, to become the Republican candidate, and Secretary Knox went so far as to give a tentative promise that he would serve. Objections on the part of President Taft, however, induced him to withdraw his consent, and he declined to have his name used before the convention. The State Republican machine, which dictates Republican nominations, is under the control of Senator Penrose, and at the meeting of the Republican Convention at Harrisburg on June 22, practically no opposition was made to the nominations favored by him. These were the following: For governor, John K. Tener; for lieutenant-governor, John M. Reynolds; for secretary of internal affairs, Henry Houck; and for State treasurer, Charles F. Wright. (Subsequently the Supreme Court decided that Mr. Wright, serving as treasurer by appointment, should hold over a year, and trusteeship nominees were dropped from the several tickets.) The platform adopted by the convention indorsed the national and State administrations, approved the Payne-Aldrich tariff law and outlined a series of State issues for the campaign. The platform declared for a ship canal from the Ohio River to the Great Lakes, a system of main State highways, compulsory arbitration of labor disputes, enforcement of the pure food laws, vigorous prosecution of the civil suits to recover the millions of dollars misspent on the State Capitol; liberal appropriations for schools and a State health campaign, and an investigation of the caving in of the surface over abandoned coal mines.

The Democrats in their convention held on June 15 nominated Webster Grim for governor, Thomas H. Creedy for lieutenant-governor, and James I. Blakslee for secretary of internal affairs. The platform adopted by the convention attacked the Republican policy of protection, declaring that the party had taxed the necessities of life for the benefit of corporate trusts and declared that trusts and monopolies should be abolished or controlled by the supervision and management of their business by legislation. A demand was made for the conservation of public lands, forests, water-power and mineral resources. A plank was incorporated favoring the income tax amendment to the Constitution of the United States.

A body of Republicans and Democrats, who were dissatisfied with the results of their party conventions, organized a new party known as the Keystone Independent. The convention was held at Philadelphia on July 28, at which William H. Berry, former State treasurer, was nominated for governor; D. Clarence Gibbon, President of the Philadelphia Law and Order Society, for lieutenant-governor; Cornelius D. Scully of Pittsburg for State treasurer; and John J. Casey of Harrisburg for secretary of internal affairs. Of this ticket, Berry and Casey were Democrats and Gibbon and Scully Republicans.

That the Republican majority would be reduced in the November elections was indicated by the result of the congressional primaries held on June 4. In this election, Representative Dalzell, one of the most prominent members of the House of Representatives, and a strong conservative or reactionary, narrowly escaped defeat for renomination, Joseph C. Sibley, formerly a member of Congress, was nominated in the 28th District, but several months later he was

indicted on the charge of bribing voters to secure his renomination. According to his own statement, Mr. Sibley spent \$42,500 to secure the Republican nomination in the five counties composing the 28th District.

The campaign which followed the nominations was a bitter one and was not free from personalities. Charges were made by various newspapers reflecting upon the character of the Republican nominee, Mr. Tener, and he brought libel suits against several journals making these charges. The nominees of all three parties made an active campaign throughout the State. The result of the voting on November 8 was as follows: John K. Tener, 415,611 votes; Webster Grim, 129,395 votes. Mr. Berry, candidate for the Independent Keystone Party, received 362,127 votes or nearly three times the number cast for the Democratic nominee. A falling off in the Republican vote is indicated by the fact that in 1908 President Taft received 745,779 votes. The entire Republican ticket was elected.

**PITTSBURG GRAFT CASES.** The most sensational events in the history of the State were those connected with the indictment and prosecution of persons accused of receiving and giving bribes in Pittsburgh. These prosecutions were begun as a result of the work of the Voters' League from 1906 to 1908 in investigating the methods of Councils, especially in passing ordinances providing for contracts with banks to be city depositories. The city had up to July 1908, been paid 2 per cent, upon its bank deposits. An ordinance was introduced in Councils providing that certain city depositories be designated by Councils for a term of four years, the city to receive only 2 per cent. on daily balances. Certain other banks offered to pay 2½ per cent. Out of 77 votes cast at the balloting on this ordinance in Common Council, 76 were in favor of it. The ordinance was vetoed by Mayor Guthrie and was re-passed over his veto by a vote of 73 to 2 in Common Council and 42 to 6 in Select Council. Investigations by the Voters' League disclosed a remarkable condition of corruption among municipal officers and officials of certain banks. As a result, seven councilmen were arrested for receiving bribes on December 31, 1908. At the same time the president and the cashier of the German National Bank of Pittsburgh were arrested on charges of bribery. On February 18, 1909, W. W. Ramsey, former president of the German National Bank, was convicted on a charge of bribing councilmen to have his bank named as one of the six city depositories. He was convicted and sent to the penitentiary; A. A. Vilsack, the cashier, pleaded no defense and was sentenced to jail. Prosecutions were carried on during 1910 and many convictions were obtained. Many cases were pending at the close of the year 1909 and several men were under bail.

On January 14, 1910, five prominent citizens of Pittsburgh were arrested, charged with conspiracy, perjury, bribery, and other offenses. These men were Edward H. Jennings, president of the Columbia National Bank; Frank F. Nicola, a prominent and influential business man; Max G. Leslie, Allegheny county delinquent tax collector; Frank A. Griffin, formerly vice-president and cashier of the Columbia National Bank, and Charles Stewart, formerly member of the Council.

In February Max G. Leslie was tried and acquitted. E. H. Jennings, president of the Co-

lumbia National Bank, and F. A. Griffin, formerly cashier of the bank, testified that they had given to Leslie \$25,000 to be used in procuring by bribery the passage of an ordinance making their bank a depository for city funds.

John F. Klein, a former councilman, who had been convicted of giving and receiving bribes, in March made a confession to the prosecuting attorney which implicated not less than eighty persons. Among these were several bankers, but the larger part were former or present members of the Select or Common Councils. Klein confessed that he had been one of the persons who distributed the bribe money which was paid by six banks to procure ordinances making them depositories of city funds. He had kept complete records of these transactions and after the bribers refused to pay him \$60 a month for the support of his wife and two young children during his term of 3½ years imprisonment in the penitentiary, he resolved to confess. His confession was a few days later supplemented by those of two of his former associates in Council, Joseph C. Wasson and William Brand, both of whom had been convicted. Following Klein's confession the district-attorney on March 20, invited all the bribe-takers to confess in open court. He promised to favor those who confessed and to prosecute those who refused. On the following day ten of these confessed. These, with one exception, had, as members of the Council, sold their votes for sums ranging from \$80 to \$500. The exception was Dr. W. H. Weber, who had received \$10,000, of which he had given \$6000 to Klein and had distributed \$4000 among forty others. In the three days following 24 more persons confessed to Judge Frazer. These received sums ranging from \$50 to \$1100. On May 25 an indictment against 31 persons was brought by the grand jury. That body also demanded that the directors of the six banks named as city depositories should investigate in relation to the action of the officers of the institutions and report in writing. These banks were the Farmers' Deposit National Bank, the Second National, the German National and the Columbia National, of Pittsburgh, and the German National and the Workingmen's Savings and Trust Company of Allegheny. In the interest of these banks, \$102,500 was alleged to have been paid in bribes. The grand jury published a list of fifty-four councilmen and the sums they received, ranging from \$50 to \$500 for the passage of one ordinance. Max G. Leslie, who had been acquitted a few days before, was again accused. The exposure of corruption was due largely to the efforts of the Voters' League, who employed detectives.

During the last week in March, 24 other persons were indicted, making a total number of 97. Among those thus accused was Dr. E. R. Walters, formerly president of the Select Council and at the time of his indictment director of public health and charities. He was charged with having accepted a bribe of \$1000 for voting to make one of the banks a depository for city funds. Much of the evidence upon which these indictments were based was obtained from already convicted councilmen. In response to the district-attorney's invitation, six more councilmen came into court in the same week and admitted their guilt. On April 1, a mass-meeting was held in which the subjects of discussion were the graft cases and the movement against vice. To this meeting the mayor, William A.

Magee, came, and without invitation undertook to defend himself against the criticism of several speakers. His defense was not well received by his listeners.

On April 6 the grand jury indicted Frank N. Hoffstot, president of the Pressed Steel Car Company and of the German National Bank of Allegheny, and the director of several other corporations. It was charged that he gave or caused to be given in New York City, to a Councilman, Charles Stewart, \$52,500 to be used in bribes for an ordinance making three banks, the German National Bank of Allegheny, the Farmers' Deposit National and the Second National, depositories of city funds. This bribery was alleged to have occurred in 1908. He was also accused by the grand jury of having solicited and obtained a contribution of \$21,000 from the cashier of the Second National Bank as a part of the bribery fund. Previous to the indictment of Hoffstot, the court had heard the confession of Charles W. Friend, vice-president of the Clinton Iron and Steel Company, a director of Hoffstot's company and of the Second National Bank. He admitted that he had paid bribe money to Stewart. Emil Winter, president of the Workingmen's Savings and Trust Company, also confessed to the court that he had paid to Morris Einstein \$20,000 to be used for an ordinance in favor of that company. Councilman P. B. Kerns confessed that he had taken and distributed bribe money, adding that he had held back for himself more than was assigned to him. Max G. Leslie, county delinquent tax collector, was indicted for a second time.

In April M. L. Swift, Jr., a former member of the Common Council, was placed on trial for taking bribes. John F. Klein was the chief witness against him. He was found guilty with a recommendation to mercy. In the same week, A. V. Simon, a councilman, was put on trial. After deliberating 46 hours the jury reported a verdict of acquittal, providing that Simon would pay all costs of the case and would at once resign from the Council. The judge declined to accept this curious verdict and discharged the jury. Leslie asked for a change of venue, alleging that public prejudice would prevent a fair trial in Pittsburgh and that the county authorities would pack the jury against him. District Attorney Blakeley joined in asking for a change of venue on other grounds. His remark to the court implied an inference that he could not expect justice in a trial in Pittsburgh of a person prominent and active in politics. He declared that a large fund had been raised and was being used against the interests of justice. In the case of Frank N. Hoffstot who was arrested in New York City Governor Hughes decided to honor the requisition of the governor of Pennsylvania. Hoffstot delayed extradition by securing a writ of habeas corpus, and appealed to the United States Supreme Court. The decision was against him and he returned to Pittsburgh and gave bail.

Maurice S. Coffey, a former councilman, was tried for bribery and the jury disagreed, standing seven to five for conviction.

On May 14 the following men who had been found guilty of bribery or who had admitted their guilt, received the following sentences: A. A. Vilsack, formerly cashier of the German National Bank, who pleaded guilty and testi-

fied for the prosecution, eight months in jail and a fine of \$5000; Charles Stewart and Hugh Ferguson, former councilmen, eight months in jail and a fine of \$500; Dr. W. H. Weber, former member of the council, six months in jail and \$500 fine; P. B. Kerns, former councilman, six months in jail and \$250 fine; Morris Einstein, former councilman, six months in jail and \$2500 fine. Charles W. Friend, vice-president of the Clinton Iron and Steel Company, was fined. M. L. Swift, ex-councilman, finally was imprisoned. Dr. F. C. Blessing, president of the Common Council, was convicted of bribery, but the jury asked the court to be lenient. He appealed. In the case of Charles C. Schad, formerly a councilman, the jury disagreed and was discharged. Frank F. Nicola, a wealthy business man who was accused of having assisted in bribing councilmen in the interest of the Columbia National Bank, was acquitted. Joseph G. Armstrong, director of public works, was arrested on charges that he was guilty of forgery, perjury and subornation of perjury in connection with the falsification of pay rolls. E. H. Jennings was sentenced to jail for two months and fined \$500 and Frank A. Griffin was sentenced to jail for four months and fined \$500.

**STATE CAPITOL FRAUDS.** Prosecutions were carried on during the year against those who had been indicted for frauds in the furnishing of the State Capitol at Harrisburg.

The sentence of two years' imprisonment and a fine of \$500 against William P. Snyder, auditor-general, and James M. Schumaker, general superintendent of the public buildings and grounds, found guilty in December, 1908, of conspiracy to defraud the State in connection with the furnishings of the State Capitol at Harrisburg, was affirmed by the higher court on March 7. Two other persons, William L. Mathues, state treasurer, and John H. Sanderson, were in 1908 found guilty on the same charges. They both died, however, before sentence could be executed. On the same date the attorney-general of the State started suit to recover, if possible, the moneys fraudulently taken, by bringing suits in equity for more than \$5,000,000. The defendants were ex-Congressman Burd Cassell, president of the Pennsylvania Construction Company, E. L. Reinhold and E. B. Reinhold, officers of the same company, I. G. Harris, formerly State treasurer, E. B. Hardenbergh, formerly auditor-general of the State, T. Larry Eyre, formerly superintendent of public buildings and grounds, William P. Snyder, formerly auditor-general, James M. Schumaker, formerly superintendent of public buildings, Joseph M. Huston, architect of the Capitol, and the estates of W. L. Mathues and John H. Sanderson. Suits were brought also against various trust companies, surety companies and individuals, in sums exceeding \$2,000,000. It was alleged in these suits that Sanderson received \$5,376,308 for articles worth only \$1,344,077 and that \$2,000,000 was paid to the Pennsylvania Construction Company for metallic filing cases which in reality were not worth more than \$750,000. It was charged also that a corrupt agreement had been made in 1902 even before the contract for the erection of the new Capitol had been awarded.

Joseph M. Huston in the latter part of April was found guilty of conspiracy to defraud the State. The jury at first insisted upon a verdict that Huston was guilty of fraud, saying there



**"THE BROKEN LAW"**



**"A NEW ADAM AND EVE"**



**"WORK AND FRATERNITY"**

**SCULPTURES BY GEORGE GREY BARNARD FOR THE PENNSYLVANIA  
CAPITOL (HARRISBURG)**

৪৭৩

had been no conspiracy, but finally a verdict in conformity with the indictment was rendered. Huston was accused on 34 indictments in addition to the one on which he was tried, and is a defendant in a civil suit of the State for the recovery of \$5,000,000. Huston was sentenced to pay a fine of \$500 and to be imprisoned for an indeterminate sentence of from six months to two years.

The last of the defendants to be tried in the criminal cases arising out of the Capitol frauds at Harrisburg, was Charles G. Wetter, a member of the firm that erected the building. He withdrew the plea of not guilty on the understanding that he should make restitution for the overcharge. A new trial was denied Joseph M. Huston, the architect. Wetter paid \$14,518 in restitution and was discharged.

**OTHER EVENTS.** The great dam of the Pennsylvania Water and Power Company at McCall's Ferry was formally opened on October 14. This dam provides power for supplying light and power to the city of Baltimore and for other purposes. On February 5, eleven men were killed by a gas explosion in a coal mine near Indiana.

The notable pieces of statuary by George Gray Barnard, made for the State Capitol at Harrisburg, were placed in position in 1910. They are generally regarded as the most important works of sculpture produced by an American sculptor.

**STATE OFFICERS.** Governor, John K. Tener; Lieutenant-Governor, John M. Reynolds; Secretary of the Commonwealth, Robert McAfee; Treasurer, C. F. Wright; Auditor-General, A. E. Sisson; Adjutant-General, Thos. J. Stewart; Attorney-General, John C. Bell; Superintendent of Public Instruction, N. C. Schaeffer; Insurance Commission, S. W. McCulloch; Commissioner of Agriculture, N. B. Critchfield,—all Republicans, except Schaeffer and McCulloch, Democrats.

**SUPREME COURT.** Chief Justice, D. Newton Fell; Associate Justices, J. Hay Brown, Wm. P. Potter, John Stewart, Robert Von Moschzisker, S. L. Mestrezat, and John P. Elkin—all Republicans, except Mestrezat. Prothonotary, Eastern District, James T. Mitchell, Prothonotary, Middle District, William Pearson; Prothonotary, Western District, George Pearson.

**STATE LEGISLATURE, 1911.** Republicans, Senate, 38; House, 161; joint ballot, 199; Democrats, Senate, 12; House, 45; joint ballot, 57; Independent, House, 1; Republican majority, Senate, 26; House, 115; joint ballot, 141.

**PENNSYLVANIA ACADEMY OF FINE ARTS.** See PAINTING.

**PENNSYLVANIA SUGAR REFINING CO.** See TRUSTS.

**PENNSYLVANIA TUNNELS.** See RAILWAYS.

**PENNSYLVANIA UNIVERSITY OF.** An institution of higher learning in Philadelphia, Pa., founded in 1740. The departments of the university include the College, the Graduate School, Law School, School of Medicine, School of Dentistry and School of Veterinary Medicine. The attendance in these departments in the college year 1910-11 was as follows: College, 3730; Graduate School, 416; Law School, 347; School of Medicine, 460; School of Dentistry, 462, and

School of Veterinary Medicine, 154, or a total of 5389. The officers of instruction numbered 630, of which 259 were in the college. The university has a large representation from the different States and from foreign countries. The students from foreign countries in 1910-11 numbered 262. There were 24 from China, 22 from Canada, 18 from Australia, 8 from Japan, and representatives from nearly every country in Europe and South and Central America. The library includes about 300,000 volumes. The most important event in the history of the university in 1910 was the resignation of the Provost, C. C. Harrison. Edgar F. Smith, Blanchard professor of chemistry, was appointed Provost in his stead. The productive funds of the university in 1910-11 amounted to \$12,774,372, the total income to \$1,362,927 and the receipts from benefactions to \$464,820.

**PENOLOGY.** Several features of the progress in the treatment of crime and criminals are notable. The fundamental fact has been the wider acceptance of the views that crime and delinquency are indications either of faulty inheritance or vicious environment; and that society is on the whole responsible for allowing either the congenital criminal to be born or the otherwise socially desirable individual to be corrupted by bad surroundings. The result is the introduction of more humane treatment, and a demand for more exact knowledge both of the so-called criminal type and its inherited traits and of social conditions productive of law breaking. Instead of harsh primitive methods, advanced prison policy seeks to remedy the defects of previous training by sanitary and wholesome surroundings, by prison schools, by teaching trades and by emphasizing the dignity of labor. So far as possible individual treatment of each convict is practised. Young and incipient criminals are separated from the old and hardened. Criminal law and court procedure are being reformed through the decline of the idea that society must be revenged; by the creation of separate courts for children (see JUVENILE COURTS) and women; by the increasing use of the indeterminate sentence and the parole and probation systems. Agencies for assisting the released convict into a respectable position are being perfected, as are also plans for enabling the imprisoned father to care for his family by his prison labor. Then in the United States there is a very powerful movement for the reform of jail and prison construction, so as to make them more sanitary and association in them less corrupting.

**MEETINGS OF ASSOCIATIONS. AMERICAN PRISON ASSOCIATION.** During the last days of September and the first week of October there met in Washington, D. C., the American Prison Association, the American Institute of Criminal Law and Criminology, and the International Prison Congress. In his presidential address before the first of these, Mr. Amos W. Butler of Indianapolis brought out the enormous waste resulting from ineffective utilization of prison labor. He advocated the extension of the system of State farms now profitably conducted in the South. Other speakers declared that the reformatories and prisons receive altogether too many persons who would be diverted from a life of crime if the reformatory and preventive methods of work-houses, jails, and house of correction were more effective. A number of speakers advocated a just and humane treat-

ment of criminals while in prison and the extension of a helping hand to those released. The general conclusion from experience seemed to be that fair and humanitarian treatment accomplished a great deal more than harsh and severe punitive methods. Great stress was laid upon the salutary benefits of the indeterminate sentence and the laws allowing commutation of sentence for good behavior. Mr. Albert H. Hall of Minneapolis strongly advocated an increase in facilities for the correction and utilization of criminal statistics. He also made the radical suggestion that Bertillon measurements and photographs of every citizen be made matters of public record. He believed that the benefits of such a full biographic and civic record of every man would be of great benefit to the improvement of social policy. The 1911 session of the association will be held at Omaha, Neb.

**AMERICAN INSTITUTE OF CRIMINAL LAW AND CRIMINOLOGY.** At the sessions of the American Institute of Criminal Law and Criminology, the president, Prof. John H. Wetmore of Northwestern University pointed out that the Institute during its first year had stimulated the organization of local bodies of similar nature. State conferences were held in Kansas and Wisconsin. The work of the Institute is organized under nine committees, of which seven were able to report. One of these had established the *Journal of the American Institute of Criminal Law and Criminology*. The committee on translation of European treatises had completed the translation of the following: *Criminal Psychology*, by Hans Gross; *Modern Theories of Criminology*, by Bernaldo de Quiros; *Criminal Sociology*, by Enrico Ferri; *Individualization of Punishment*, by Raymond Saleilles; *Crime, Its Causes and Remedies*, by Cesare Lombroso; *Penal Philosophy*, by Gabriel Tarde; *Criminality and Economic Conditions*, by W. A. Bonger; *Criminology*, by Raffaele Garofalo; *Crime and Its Repression*, by Gustav Aschaffenburg. The series is published by Little, Brown and Co., Boston. A third committee on "an effective system for recording the physical and moral status and the hereditary and environmental conditions of delinquents and the persistent offender," presented an elaborate schedule of juvenile and municipal courts. Reports were had on the organization of courts, criminal procedure, and criminal and judicial statistics. New committees were organized to investigate the "insane offender" and "the alien and the courts." The invitation of the International Criminalistic Union to become its American unit was accepted by the institute. Nathan W. MacChesney, of Chicago, was chosen president for the coming year, and Harry E. Smoot, of Chicago, secretary.

**INTERNATIONAL PRISON CONGRESS.** The ninth quinquennial session of the International Prison Congress at Washington, October 2-8, was attended by delegates from twenty-two adhering countries and from Spain, Egypt, several South American republics, China and Japan, not yet officially members. This Congress is supported by the adhering governments and the delegates make official reports to their respective powers. Preceding the sessions, the delegates had been taken on a prearranged tour of inspection to various jails, prisons, industrial homes, and reformatories of the northern and central States. This brought very clearly before the visitors the progress the United States has

made in reformatory methods as well as the mediæval conditions prevailing in local jails. The delegates strongly condemned the mode of construction followed in these, with cells opening into a central corridor, with little light, no sunshine, no outside air, the prevalence of tuberculous conditions, the absence of facilities and rules for regular exercise or healthful employment. The frequent placing of two or more persons in one cell, and the promiscuous association of young and old, the convicted, the drunken, and those awaiting trial. Even the cell system at Elmira Reformatory was condemned as not up to modern ideas. The existence of the most advanced methods in the world in American State reformatories, alongside of conditions in city and county jails which some European countries long ago ceased to tolerate, was attributed to the decentralization of local administration in this country.

The congress met in four sections. Unlike American conferences papers were not read and discussed, but summaries of papers were presented and the time of the sessions was devoted to the discussion of resolutions. The resolutions adopted by the sections were later submitted to the general assembly of all. The section on criminal law was occupied with the use and limits of the indeterminate sentence, methods of giving effect to the penal sentences of foreign tribunals, how to deal with persons who associate with criminals or indirectly participate or aid in the commission of offenses. One of the greatest achievements of the congress was the formal approval of the indeterminate sentence, a product of American developments. There was, however, a strong demand for statistical and other data, making possible a scientific judgment of the indeterminate sentence and of parole. The second section, devoted to prison administration, considered reformatory methods, the parole system, and prison labor. Resolutions approved by the congress favored the centralization of control of all penal institutions, including local jails; the useful employment of all inmates, whether merely detained for trial or sentenced for long terms. The systems of labor in the United States were classified as the lease, the contract, the piece price, the State account, and the State use systems. The last three were regarded as best; farm and market garden work were advocated for short term prisoners. In the discussion the introduction of factory methods as shown in various American institutions was condemned as making the convict a mere automatic machine tender rather than a skilled workman master of a trade. This second section held that sentences should be not only retributive and deterrent in purpose but also reformatory; but since reformation and short sentences are incompatible longer sentences with a parole system were advocated. Special treatment for adolescents was strongly approved. The section on prevention declared that prisoners should be paid for their labor, such pay to be available for needy dependents of the prisoner. The treatment of inebriate criminals, the relation between inebriety and insanity, and the effect of alcoholism of parents on the nervous systems of offspring were discussed, and the plan of detention in hospital of habitual criminal drunkards was declared successful. Resolutions of the congress divided vagrants and mendicants into three classes, the incapacitated,

the accidental, and the professional; they advocated workhouses, giving prominence to agricultural and industrial training, for the third class; and they favored a system of classification and identification for this class. The congress also approved the discreet use of the probation system, and advocated central supervision of probation in each State. The fourth section dealt with the methods of criminal procedure suitable for children and minors, institutions for backward and feeble-minded children, the idleness of children in large cities, and protection for illegitimates. The methods of American juvenile courts were approved, including separate hearings, probation system, medical examination, and separate quarters for detention. Experience was declared to be inadequate for judging the advantage of separating abnormal children with criminal tendencies from other defectives. Resolutions were adopted calling for greater responsibility of parents for the wrongdoing of their children; for greater coöperation between public schools and parents to prevent idleness and secure training in handiwork; for "vast additions to playgrounds, wholesome recreation centres, gymnasiums and athletic fields as the surest preventives of juvenile mischief and crime." The congress resolved that legislative action should "make the care, support and inheritance of illegitimate and legitimate children as nearly identical as possible"; that the care of the illegitimate child should be governed by the fact that he is a future citizen; and that instruction should be given to youth so as to prevent illegitimacy and to girl-mothers so as to prevent abortion and prostitution. Running through the deliberations of the entire congress was the repeated emphasis on the lack of adequate and exact information, statistical and other, for the accurate judgment of recent reforms or the formulation of still newer policies. Likewise there was continued stress on the principle of individual treatment of each delinquent.

The next session of the congress will be held in London, 1915.

**PROBATION SYSTEM.** A bill was introduced in Congress early in the year by Senator Owen of Oklahoma, authorizing the introduction of the probation system in the United States courts, outside of the District of Columbia. It was shown that in 1908 these courts disposed of 8023 criminal cases. In that year 1372 persons were committed to Federal penal institutions; of these eighty-one per cent. had never been in prison before; sixteen per cent. were under twenty years of age; thirty-nine per cent. were between twenty and thirty; forty-six per cent. were married; and forty-five per cent. were reported as temperate in habits. These facts furnished the basis for the bill.

The National Committee on Prison Labor was incorporated in New York in March, its object being to concentrate all forces working on the problems of prison labor. It will investigate the systems now in use; formulate plans for improvement; and endeavor to secure uniform legislation. Its circular stated that the market value of products of prison labor in 1900 was \$35,000,000.

**NEW YORK.** The Page Commission appointed in 1908 to study the courts of inferior criminal jurisdiction in New York, Buffalo and Rochester secured the passage of a law effective September 1. This law, which dealt with New York City

only, provided new children's courts for the boroughs of Queens and Richmond; a separation of the night court into two sections, one for men and one for women; the creation of two courts on domestic relations, to deal primarily with cases of non-support; additional probation officers; the introduction of the finger-print system of identification in the night court; and medical examination of prostitutes. For greater details see **JUVENILE COURTS** and **PROSTITUTION**.

**ENGLAND.** In August Home Secretary Winston Churchill outlined some radical reforms in prison administration. These included more humane treatment of convicts; extension of the time allowed for the payment of fines in order to lessen the number imprisoned for non-payment; the abolition of imprisonment for persons under 21, except for gross crimes; the institution of special plans for the correction of delinquent boys and girls; the abandonment of police surveillance of released criminals; provision of lectures and concerts in convict prisons; and special treatment for passive resisters and suffragettes.

**BELGIUM.** The International Union of Penologists held its eleventh session at Brussels in August. Psychological problems received chief attention, particularly the psychology of testimony; and the question whether, in order to reconcile individual liberty and social safety, persons committing criminal acts while temporarily unbalanced by nervous excitement should be treated as criminals or as nervous defectives.

**PENSIONS.** See **UNITED STATES**.

**PEOPLE'S POWER LEAGUE.** See **OREGON**.

**PERIDOTS.** See **CHEMISTRY**.

**PERKINS, JAMES BRECK.** An American public official and historian, died March 11, 1910. He was born at St. Croix Falls, Wisconsin, in 1847 and graduated from the University of Rochester in 1867. He was admitted to the bar in 1868 and remained in active practice until the time of his death. In 1874 he was elected city attorney of Rochester for a term of two years, and in 1876 was re-elected for a second term. From 1890 to 1895 he lived in Paris where he was engaged in researches in French history. In 1887 he published *France under Mazarin*; in 1892, *France under the Regency*; in 1897, *France under Louis XV*; and in 1900, *The Life of Richelieu* in the *Heroes of the Nations* series. He returned to Rochester in 1895 and in 1898 was elected to the New York State Assembly. He was elected to the 57th, 58th, 59th and 60th Congresses and was re-elected to the 61st Congress. Mr. Perkins was considered one of the strongest members of the House of Representatives and took an active part in the proceedings of that body. He was a member of several important committees.

**PERLIS.** A Malay state transferred (March 10, 1909) from Siamese to British protection. Area roughly estimated, 300 square miles; population (estimate), 27,000. Rice is the staple product. No records of imports and exports exist. Revenue and expenditure (1909-10), 102,552 dollars and 87,310 dollars respectively. (Straits Settlements dollar = 56.7758 1/2 cents.) Present raja, Syed Alwi. British adviser, Meadows Frost.

**PERMUTIT FILTERING.** See **CHEMISTRY, INDUSTRIAL**.

**PERSIA.** A constitutional monarchy in western Asia. Capital, Teheran.

**AREA, POPULATION, ETC.** Area, 628,000 square miles. The ill defined western boundary marches with Turkey, giving rise, since 1906, to serious disputes with that country. Population, about 9,500,000. The nomads number about two millions, chiefly Arabs, Kurds, Turks, and Leks. Teheran has about 280,000 inhabitants; Tabriz, 200,000; Ispahan, 80,000; Meshed and Kerman, 60,000 each. The laws and popular education are based on the precepts of the Koran, which is the only book the people are encouraged to study. Instruction in religion, Persian and Arabic literature, science, etc., is imparted to children of the higher classes in Persian colleges, and European institutions are maintained by private subscription. The Shah is of the Shi'ah sect, to which about 8,000,000 of the people belong; 800,000 belong to the Sunni sect; 45,000 are Armenians, 35,000 Jews, 25,000 Nestorians, 9000 Parsis.

**PRODUCTION.** In the central and eastern parts of Persia are vast salt deserts. In the north and west are extensive forests encircled by mountains rising in the north to 18,500 feet. The chief products are cereals, cotton, gums, tobacco, fruits, silk, opium, wool, and carpets. Opium exported in 1908-9, 5164 hundred-weight; 1905-6, 1992. The production of tragacanth is increasing. Sheep and goats are numerous. The minerals (little worked) are salt, iron, coal, copper, lead, sulphur, etc.; turquoises are mined. Oil fields in the south have been exploited by a British company. Persian carpets are made entirely by hand. The use of aniline dyes is prohibited by the government.

**COMMERCE.** The trade for four years, according to the published statistics of the Minister of Customs, is given below in thousands of krāns (the krān being equal in 1905-7 to about 8.11 cents; in 1907-8, to about 9.73; in 1908-9, to about 9.05):

	1905-6	1906-7	1907-8	1908-9
Imports .....	386,463	431,040	408,434	372,484
Exports .....	293,143	353,377	317,081	326,207

Principal articles of trade (1908-9) in 1000 krāns:

Imports	1000 kr.	Exports	1000 kr.
Cottons .....	128,678	Cotton (raw) .....	42,378
Sugar .....	91,798	Fruits .....	46,746
Tea .....	21,955	Carpets .....	39,547
Yarn .....	7,214	Rice .....	28,754
Petroleum .....	6,829	Fish .....	24,587
Woolens .....	6,638	Skins .....	16,973
Rice .....	5,124	Opium .....	14,381
Spices .....	3,040	Silk (raw) .....	13,958
Copper, etc. ....	2,290	Wool .....	10,387
Matches .....	2,042	Gums .....	10,294
Timber .....	2,107	Silk stuffs .....	6,807
Dye-stuffs .....	2,425	Animals .....	6,593
Flour .....	2,978	Cereals .....	4,650
Pressed meats ..	21,759	Cottons .....	3,762
Coin .....	5,428	Coin .....	37,466

Countries of origin and destination, with trade for two years in 1000 krāns are shown in table at top of next column.

Tonnage entered at Bushire, Lingah, Bender Abbas, and Mohammerah (1908-9), 1,259,640 (British, 1,038,980); at Caspian ports, 590,948 (all Russian).

	Imports		Exports	
	1907-8	1908-9	1907-8	1908-9
Russia .....	191,172	178,817	202,662	229,817
Great Britain .....	169,065	148,814	36,579	33,989
Turkey .....	11,864	11,848	39,235	37,340
France .....	9,966	12,670	10,916	4,683
Germany .....	7,111	5,778	1,417	532
Aus.-Hun. ....	4,818	3,629	2,451	15
Afg'stan .....	4,326	3,116	3,625	2,746
Italy .....	2,997	1,080	13,198	6,336
China .....	407	325	2,958	6,694
United States ....	164	247	1,551	194
Other .....	6,544	6,161	4,938	3,861
Total .....	408,434	372,484	317,080	326,207

**COMMUNICATIONS.** Persia's relations with Russia are chiefly through ports on the Caspian (on which Russian vessels alone are permitted), and by the Trans-Caspian Railway; with England and British India, by way of the Persian Gulf. New roads from the frontier, bounties placed on sugar, and proximity to the more populous and best cultivated provinces have combined with the Trans-Caspian to extend Russia's trade and influence. The only navigable river is the Karun, open since 1888 to foreign vessels, from Mohammerah to Ahwaz; thence as far as Shuster to Persian vessels only. A (Belgian) railway runs south from Teheran about six miles. Travel is mostly by caravans and transport by pack animals, making the cost of transportation very heavy; the trade centres are reached by long and difficult trade routes, infested with marauders. The telegraph system includes 6312 miles of line, 10,754 of wires, and 131 stations. A new line from Teheran to Karachi (India) has been constructed by British capital. Most of the important telegraphs are under the management of the Indo-European Telegraph Department of the government of India. Post-offices, 144. There is also a Persian Minister of Posts and Telegraphs, who is a member of the cabinet.

**FINANCE.** The unit of value is the krān, a silver coin, fluctuating in value from 7.2 to 9.73 cents (December, 1909, about 8.85). The country is in serious financial difficulties. No official statistics of revenue and expenditure are published. Taxes are levied in kind, and fall most heavily upon the poor. Estimated revenue from land tax, crown lands, customs, and lease of monopolies (1907-8), about 80,000,000 krāns. No estimate of expenditures can be made, except for the cost of the Foreign Office, about 2,600,000 krāns. The debt amounts to £5,470,000 (to the Russian government, £3,300,000, to the Bank of Russia, £1,160,000; to the British government, £320,000, to the Bank of England, £690,000). The Russian debt is secured on the customs, which (with the post-office) have been in the hands of European officials since 1900. There are British and Russian banks, and a concession was granted in 1907 for a German bank.

**ARMY.** The army in 1910 was undergoing a complete reorganization. There was a reform commission composed of twenty members. The commander of the army was the Minister of War Firman Firma, while the foreign instructors of troops were General Maletta and Colonel de Kosteritz-Marenhorst. The theoretical organization ordered in 1905 provided for various divisions and commands from the different branches of the service, but with the exception of the Cossack brigade under command of a Russian officer there is but little unity and efficiency in the army. On account of shifting

organizations and varying strength, figures for the Persian army are of little value.

**NAVY.** The navy includes one screw steamer of 600 tons, one police boat, one steam yacht, and five launches; all employed in the Persian Gulf customs service, and of little use in war.

**GOVERNMENT.** The government is a constitutional monarchy, hereditary in the Shi'ah dynasty of the Kajars. Reigning monarch (1910), Ahmed Shah Kajar (son of the abdicated Mohammed Ali Shah), born January 20 (21), 1898; succeeded July 16, 1909, under the regency of Ali Reza Khan Azad-el-Mulk, chief of the Kajar tribe. On the death of the regent, September 22, 1910, the Mejliss elected (September 25), Aboul Kassim Khan Nasr-el-Mulk, a former exile and an Oxford graduate. The Cabinet formed in the spring of 1910 was superseded in July by a provisional ministry composed as follows: Premier, Mustaufi el Mamalik; Foreign Affairs, Hassein Kuli Khan Navab; Interior, Ain-ed-Daouleh; War, Firman Firma; Posts and Telegraphs, Assad Ullah Mirza. The legislative body is the Mejliss (national council) whose members (162 in 1910) are elected for two years. Heir-presumptive, Mohammed Hassan Mirza (brother of the sultan), born February 19 (20), 1899.

### HISTORY

**INTRODUCTION.** By the Anglo-Russian agreement of August, 1907, each Power engaged not to seek any concessions of a political or commercial nature beyond certain lines defined in the agreement and to respect the integrity and independence of Persia. The Russian sphere of influence by this arrangement was limited to the north and the British sphere to the south-eastern portion of the country. As to the remaining part, it was to be regarded as a neutral region in which neither Power was to oppose concessions on the part of the Persian government to the other. The disordered state of the country since that time has led to the occupation of Persian territory by Russian troops, which has been the source of constant anxiety to the Persian government and has also caused some uneasiness to certain of the European Powers. On the death of the Shah Muzaffer-ed-Din on January 8, 1907, after promising a constitution, his successor Mohammed Ali Shah, who was in spirit a reactionary, entered upon his policy of alternately withdrawing and granting a constitution until the success of the Nationalist movement in 1909 led to his deposition and the accession of the young Ahmed Kajar under the regency of Azad-el-Mulk.

**THE CABINET AND THE MEJLISS.** Two of the leaders of the uprising for the restoration of constitutional government in 1909, the Sipahdar, who had led the Nationalists, and Sardar Assad, chief of the Bakhtiari, agreed to form a new Cabinet if they were allowed a free hand in the choice of their associates; and the former became Premier. On April 30th it was agreed that the existing Ministry should continue in office. Dissensions soon arose, however, and in the summer there was a deadlock which ended only with the resignation of both the Sipahdar and Sardar Assad in July and the forming of a new Cabinet under Mustaufi-el-Mamalik. The new Ministry announced its programme at the end of July. It comprised the employment of foreign advisers; the reform of the police; the improvement of the provincial administration;

the suppression of disorder; the increase of the provincial garrisons and the creation of a central armed force of 6000 men; the reform of the courts of justice and schools, and prompt measures to cover the budget deficit. The Foreign Minister declared that he hoped soon to secure the withdrawal of the Russian troops in northern Persia. The Russian force, however, remained in the north and their presence tended to make the position of the Cabinet insecure. The regent, Azad-el-Mulk, died on September 22, and was succeeded by Nasr-el-Mulk, who received a majority of votes in the Mejliss.

**INTERNAL DISORDERS.** There were reports of an uprising at the end of May under an officer in the Russian service, the insurgents being recruited, it was said, from among the partisans of the deposed Shah. It was reported early in July that the government troops had been defeated by Kurds near Kermanshah. The most serious task before the new government, however, was the suppression of disorder at Teheran where a large and unruly rabble had gathered as a result of the Nationalist expedition of 1909. The leaders of this turbulent element were Satar Khan and Baghir Khan, who had led in the defense of Tabriz in 1909. The tribe of the Fidias took the leading part in this agitation and at one time almost threatened a counter-revolution, a large body of them refusing to surrender their arms. Finally the government issued an order requiring them to lay down their arms within forty-eight hours. A number of the Fidias having assembled at a park loaned to their chief, Satar, in recognition of his services in defense of Tabriz, the government troops fired upon them and after an engagement of eight hours, in which artillery was employed, the rebels surrendered, the loss of the government side being about twelve killed and wounded and on the side of the Fidias 30 killed and wounded and 300 prisoners. The leaders, Satar Khan and Baghir Khan were then required by the government to start on a pilgrimage to Mecca.

**RELATIONS WITH GREAT BRITAIN.** The pressing need of the Persian government was for money, and in December, 1909, it had applied to Great Britain and Russia for a loan. The two Powers, however, imposed conditions which the Persian government regarded as of a political nature and which in a note addressed to the British and Russian Ministers early in April, 1910, it declined to accept, pointing out that the distrust of Russia had increased to such an extent that the Mejliss would certainly oppose any conditions which interfered with the political freedom of the country. Many complaints had been made in recent years of the damage to British interests arising from the disordered condition of the country and especially of the failure of the Persian government to police adequately the southern trade routes. The British government repeatedly remonstrated and finally in October addressed a note in regard to the internal disorders and especially the insecurity of the Bushire-Ispahan route. The note informed the Persian government that unless order was restored on the southern roads within a period of three months, Great Britain would organize a body of local police under British officers and pay them out of a surcharge of 10 per cent. on the Persian Gulf customs. Rates on the roads had recently risen to so high a figure as virtually to close up some of them and attacks had been made on British escorts. Brit-

ish trade in that region had practically come to a standstill. The government of Russia concurred in this action. The German press, however, immediately accused Great Britain of an attempt to compass the partition of Persia. Popular opinion was especially hostile in Turkey, where a mass meeting was assembled on October 23, and a committee appointed to draft a telegram to the Kaiser, urging him to come to the aid of the Moslem state. The telegram declared that the Persians, who belonged to the great Moslem family, were seriously alarmed by British threats of invasion and that the entire Moslem world built its hope on the generosity of the Kaiser. The latter, however, sent no acknowledgment in reply to the message. Soon afterwards a Turkish battalion was dispatched to the Persian frontier ostensibly for the purpose of repressing Kurdish raids. The Persian note in reply to the British demands attributed the disorders chiefly to the presence of the Russian troops, which encouraged the reactionaries; and it accused the foreign legations of harboring wrongdoers. It called attention to the improved condition of the country; and as to the disorders in the south, it declared that it was most important that the government should have the necessary funds for administration, but it had not been able to negotiate the foreign loan. It hoped therefore that the British government would permit the levy of an additional 10 per cent. on customs, which surplus would be used in restoring and maintaining order. At the end of October a British gunboat landed blue-jackets at Lingah on the Persian Gulf at the request of the authorities to prevent a threatened raid of tribesmen. This called forth a note from the Persian government to which the British Ministry replied that the troops would be recalled as soon as order was assured. In answer to the Persian note as to the policing of the southern roads, the British government said that it could not discuss the presence of foreign troops and it denied that any measures imposed by Great Britain encroached upon Persian sovereign rights. It said that there could be no lasting revival of trade if the disorders in the south continued.

**PERU.** A South American republic, between Ecuador and Chile. Capital, Lima.

**AREA AND POPULATION.** Neither Peru's area nor population is definitely known. Perhaps the most plausible estimate of area is 679,000 square miles. At the end of 1910, the boundary dispute with Ecuador was assuming an angry appearance. The census of 1876 showed 2,660,881 inhabitants (exclusive of many uncivilized Indians), and there appears to be some doubt as to whether the population is increasing. An estimate accepted by many is about 4,500,000, but this figure is doubtless excessive. Roughly one-half of the inhabitants are Indians and most of the remainder mestizos. The larger cities are: Lima (140,484), Callao (34,436), Arequipa (35,000), Cuzco (26,000), Iquitos (20,000), Ayacucho (20,000). Immigration is small. The condition of Japanese immigrants, who number about 5000 and are employed chiefly on sugar plantations, was reported in 1910 as very unsatisfactory.

**EDUCATION.** Primary instruction is free and nominally compulsory. At the beginning of 1909 there were 2339 public primary schools, with 3105 teachers and 162,298 pupils. There are normal schools and in the departmental

capitals high schools. Some provisions are made for higher instruction. The State religion is Roman Catholicism, and the public exercise of other religious forms is unlawful.

**INDUSTRIES.** Peru is pre-eminently a mining country; many minerals and metals occur, including petroleum, coal, gold, lead, nickel, zinc, iron, and salt, but at present the exploitation of copper and silver is most important. The leading crops include sugar, cotton, rice, and coffee. Rubber, cacao, and coca are valuable products. The rearing of wool-bearing animals—sheep, alpacas, and llamas—is of increasing importance. Except in the treatment of mining products, manufacturing is conducted on only a small scale.

**COMMERCE.** Imports and exports (except those of the department of Loreto) have been valued as follows in thousands of soles:

	1904	1907	1908	1909
Imports .....	42,980	55,148	52,956	43,565
Exports .....	40,666	57,477	53,757	61,334

The department of Loreto showed imports and exports in 1907 of 6,158,000 and 9,270,000 soles respectively. The latest figures in detail available are for 1907, when the chief imports and exports were valued as follows in thousands of soles (exclusive of Loreto):

	Imports	Exports
Minerals and metals....	11,505	Minerals and metals. 20,037*
Cottons.....	6,512	Rubber, gums etc. 9,546
Machinery.....	2,937	Sugar 8,273†
Woolens.....	2,593	Cotton 5,163
Coal.....	2,446	Wool 4,281
Wheat.....	2,407	Guano 3,928
Timber, etc.....	2,086	Leather wares 1,247
Earthenware, etc.....	1,867	Cocaine 666
Drugs, etc.....	1,557	Petroleum 490

\* In 1906, 11,880,880.

† In 1906, 14,151,460.

The greater part of the trade is with Great Britain (imports from and exports to, 16,341,290 and 24,339,130 soles respectively in 1907) and the United States (11,646,670 and 13,671,060).

**COMMUNICATIONS.** The reported length of railways open to traffic in 1909 was 1478 miles. The principal railways are the Central, from Callao to Oroya, Cerro de Pasco, and Huancayo, and the Southern, from Mollendo to Puno, on Lake Titicaca (connecting there by steamer with the Bolivian line), and to Juliaca and Cuzco. Several lines extend inland from minor ports for comparatively short distances. An electric line connects Callao, the chief port, with Lima. Post-offices (1909), 639; telegraph offices, 178, with 5986 miles of line.

**FINANCE.** Gold is the standard of value. Ten soles comprise one libra, which is equivalent to the pound sterling, or \$4.8665. Estimated revenue and expenditure have been as follows for fiscal years, in thousands of soles:

	1905	1907	1908	1909
Revenue.....	25,278	26,793	29,974	30,474
Expenditure.....	21,783	21,070	30,430	32,400

The principal items of estimated revenue for 1909 were: Customs, 14,502,500 soles; taxes, 9,505,200; salt monopoly, 1,800,000; posts and

telegraphs, 1,095,000. Estimated revenue for the fiscal year 1910 was 27,463,450 soles. The government was reported in financial difficulties at the end of the calendar year 1910, and considerable retrenchment was deemed necessary. The external debt is stated at £3,140,000, of which £2,160,000 represents the capitalized value of annuities payable to the Peruvian Corporation (for 30 years, beginning with the monthly instalment of July, 1907); a further debt of £1,200,000 was contracted in 1909. The internal debt (1907) is stated at 42,544,500 soles.

**ARMY.** Military service is compulsory by the law of December 27, 1898, and the number of the annual contingent is fixed by the minister of war in accordance with circumstances. A recruit serves three years in the infantry or four years in the cavalry of the active army, seven years in the first reserve, five years in the second reserve, and 15 years in the National Guard. On a peace basis the army is formed by 1 regiment of mountain artillery with 36 Krupp guns, 1 section of field artillery, 1 section of foot artillery and engineers, 6 battalions of infantry, 6 squadrons of cavalry, 1 military school with 500 cadets, and the garrisons of Loreto and of Madre de Dios. The effective strength in 1910 was: Artillery, 41 officers and 756 non-commissioned officers and men; infantry, 132 officers, 1938 men; cavalry, 72 officers, 750 men; garrison troops, 27 officers, 378 men; making a total strength of about 277 officers and 4000 men.

**NAVY.** The navy consists of 14 small vessels, none of which has any considerable fighting value except the protected cruisers *Almirante Grau* and *Coronel Bolognesi* (3200 tons each, 24 knots, launched in England in 1906) and perhaps the cruiser *Lima*, 1700 tons, recently reboilered and rearmed.

**GOVERNMENT.** The executive authority is vested in a president, popularly elected for four years. The legislative power devolves upon a congress of two houses, the Senate (51 members) and the House of Representatives (116 members). The president in 1910 was Augusto B. Leguia, who was inaugurated September 24, 1908; 1st vice-president, E. Larrabure y Unanne; 2d vice-president, B. Sosa. See **ARBITRATION**, **INTERNATIONAL**.

**PETRE, F. L.** See **LITERATURE, ENGLISH AND AMERICAN, Biography**.

**PETROGRAPHY.** See **GEOLOGY**.

**PETROLOGY.** See **GEOLOGY**.

**PETROLEUM.** The total production of petroleum from all the fields of the world in 1909 was 297,413,791 barrels as compared with a production of 285,090,390 barrels in 1908. The fields of the United States produced in 1909 nearly three times the quantity produced in Russia, which ranks second in point of production. Other countries producing more than 1,000,000 barrels are Galicia, Dutch East Indies, Rumania, India, Mexico, Japan, Peru, and Germany. The production in Russia showed a slight increase in 1909 over the five years preceding, but it was over ten million barrels less than the production in 1904 and twenty million barrels less than the amount produced in 1901. The production in Galicia has increased steadily since 1900. The product of the fields has nearly doubled in two years. Rumania has shown a rapid gain in production from 1900 to 1907, but in 1908 this rate was checked to such an extent

that oil was imported from the newly developed additions to the oil fields of Galicia. This was necessary in order to supply the increased capacity of the Rumanian refineries.

During 1909 prospecting was vigorously carried on in South Africa, Egypt, and Persia. Oil was found in Egypt in considerable quantities and also in Persia. The following table shows the production of petroleum in the various oil fields of the world in 1908-9:

Country	1908	Barrels
United States .....	178,527,355	182,134,274
Russia .....	62,186,447	65,970,350
Galicia .....	12,612,295	14,932,799
Dutch East Indies .....	10,283,357	11,041,852
Rumania .....	8,252,157	9,321,138
India .....	5,047,038	6,676,517
Mexico .....	3,481,410	2,488,742
Japan a .....	2,070,929	2,012,409
Peru .....	1,011,180	1,316,118
Germany .....	1,009,278	1,018,837
Canada .....	527,987	420,755
Italy .....	50,966	550,000
Other .....	530,000	530,000
Total .....	285,090,390	297,413,791

a Including Formosa except in 1905 b Estimated.

Further details in relation to the production of petroleum in the respective States will be found in the paragraphs *Mineral Production* under the headings of these States.

The production of petroleum in the United States in 1909 showed a slight increase over that of 1908. There were produced in the former year 182,134,274 barrels as compared with 178,527,355 barrels in 1908. California in 1909 took first place among the States in point of production, surpassing Oklahoma which in 1908 held first rank. The product in California was about 6,500,000 barrels more than any other State has ever produced in a year. Only three States contributed greatly to the increase of the quantity produced. These were California, Oklahoma, and West Virginia. In all the other States there were decreases, the greatest decline being in Louisiana, where the production fell off 47 per cent.

The use of fuel oil by the railroads of the United States resulted in a consumption in 1909 for this special purpose of 19,939,394 barrels as compared with 16,889,070 barrels in 1908. The consumption of oil per mile of road operated was 3.66 barrels in 1909 as compared with 3.81 barrels in 1908 and 3.93 barrels in 1907, which indicates that the methods now employed are more economical than those in use when oil was introduced as a fuel by the railroads of the country. The oil consumed on the railroads is mostly crude, but includes a considerable quantity of residuum, the part left after the lighter oils have been extracted by refining.

Fuel oil has been introduced into the United States navy with good success. During 1909 two battleships, the *North Dakota* and the *Delaware* were equipped with auxiliary oil burning plants and four battleships under construction will each carry 400 barrels of oil to burn as auxiliary to coal. In England, Germany, France, Italy, and Austria similar experiments have been made. The table given at the top of next column shows the amount of petroleum produced in each State in the Union in 1908-9.

State	Quantity 1908	Quantity 1909
	<i>Barrels</i>	<i>Barrels</i>
California .....	44,854,737	54,433,010
Colorado .....	379,653	310,771
Illinois .....	33,686,238	30,898,339
Indiana .....	3,283,629	2,296,086
Kansas .....	1,801,781	1,263,764
Kentucky .....	727,767	639,016
Louisiana .....	5,788,874	3,069,531
Michigan .....	15,246	5,750
Missouri .....	1,160,128	1,134,897
New York .....	10,858,797	10,632,793
Ohio .....	45,798,765	47,859,218
Oklahoma .....	9,424,325	9,299,403
Pennsylvania .....	11,206,464	9,534,467
Texas .....	17,775	22,137
Utah .....	9,523,176	10,745,092
Wyoming .....		
West Virginia .....		
Total .....	178,527,355	182,134,274

The total value of the production of 1909 was \$128,248,783 as compared with a value for the product of 1908 of \$129,079,184.

According to the United States Geological Survey the year 1910 was sufficiently eventful in the development of new oil supplies in the United States to more than keep up the country's phenomenal production of the last three years. The production increased to over 200,000,000 barrels, which is two-thirds of the world's production, several million barrels more than the whole world produced seven years previously. The most surprising developments were in the Sunset-Midway District of California. The developments in the Caddo Field of Louisiana also entirely changed the position of that field. The production of oil in the United States in 1910 as estimated by the United States Geological Survey, was between 200,000,000 and 208,000,000 barrels, distributed approximately as follows:

	Barrels
Illinois .....	32,000,000
Appalachian and Lima .....	
Indiana fields .....	32,000,000
Gulf and Caddo fields .....	14,000,000
Mid-Continent and Rocky Mountain fields .....	53,000,000
California .....	73,000,000
	204,000,000

**PFLÜGER, EDUARD FRIEDRICH WILHELM.** A German physiologist, died April, 1910. He was born in Hanau in 1829, and studied at the universities of Marburg and Berlin. In 1859 he became director of the Physiological Institute and professor in the University of Bonn. He made special studies in the nervous systems of lower animals. In 1868 he founded the *Archiv für die gesamte Physiologie*; and wrote *Sensorische Funktionen des Rückenmarks der Wirbeltiere* (1853); *Physiologie des Elektrotonus* (1859); *Untersuchungen aus dem physiologischen Laboratorium zu Bonn* (1865), and *Ueber die Kunst der Verlängerung des Lebens* (1890).

**PHARMACEUTICAL EDUCATION.** See UNIVERSITIES AND COLLEGES.

**PHELPS, W. L.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**PHILADELPHIA SHIRTWAIST MAKERS' STRIKE.** See STRIKES AND LOCKOUTS.

**PHILHARMONIC SOCIETY OF NEW YORK.** See MUSIC.

**PHILIPPINE ISLANDS.** An insular possession of the United States, the most northerly group of the Malayan Archipelago. The total

number of islands is 3141, and the area of the total land surface is 115,026 square miles. The population of the Philippines was not taken in the census of 1910. The latest available figures are for 1903, when the total population was 7,635,426, of whom 647,740 were wild peoples. The average density of the population was 67 per square mile. The area and population of the most important islands are as follows:

Island	Area in miles	Popu- lation	Popper sq. m.
Bohol .....	1,441	243,148	169
Cebu .....	1,762	592,247	336
Leyte .....	2,722	357,641	131
Luzon .....	40,969	3,798,507	93
Marinduque .....	352	50,601	144
Masbate .....	1,236	29,451	24
Mindanao .....	36,292	499,631	14
Mindoro .....	3,851	28,361	7
Negros .....	4,881	460,776	94
Palawan .....	4,027	10,918	3
Panay .....	4,611	743,646	161
Samar .....	5,031	222,690	44

**MINERAL RESOURCES.** The Bureau of Science of the Division of Geology and Mines at Manila publishes each year the annual report of the mineral resources and production of the islands. According to this report, which is for the year 1909, the production of gold in the islands showed a slight increase over the preceding year. Gold is found in Ambos Camarines, in the Baguio mineral district, and in the Aroroy mineral district. Gold placers are found in Nueva Ecija. The mineral in small quantities is found in other portions of Luzon, but the output is as yet inconsiderable. Its value is about \$200,000. Iron is found in considerable quantities in the provinces of Bulacan and Rizol, but difficulties of transportation and lack of native coking coal have prevented incoming of sufficient capital for production on a large scale.

After nearly a decade of prospecting and of preparation, two coal mines were in operation in the islands in 1909. They were both situated on the small island of Batan in the province of Abbay, Luzon. Coal is also found in the provinces of Cebu, Tayabas, Sorsogon, Mindoro and Moro. Coal was first discovered in the Philippines in 1827 on the island of Cebu and in 1904 the United States Army began development work on the western end of Batan island. The coal industry has now passed beyond the stage of prospect, and development and production have begun. Iron is known to exist in various places in the islands, but the only province in which any marked development has been made is Bulacan. In this province is the Hison mine, which has been longest and most successful in operation. At this mine is the only successful iron furnace in the islands. It is owned and managed by a Tagalog woman. Of the metallic minerals known to exist in larger or smaller quantities are copper, silver, lead, manganese, platinum, cinnabar and arsenic. There were also large quantities of stone, gravel, sand, lime, clay products and salt. The total value of these products in 1909 was 1,504,091 pesos as compared with a value of 1,815,918 pesos in 1908. But investigations of the Bureau of Science show that the mineral resources of the islands are practically untouched and await only the introduction of capital in sufficient quantities and the adjustment of labor conditions to make the mining industry of great importance.

**AGRICULTURE.** Owing to economic and other conditions, the agricultural development of the

islands has been slow since American occupation. The passage of the tariff law in 1909, however, had the immediate effect of increasing the value of the agricultural products. In many portions of the islands, especially in Batangas, Pangasinan, Cebu and Negros Occidental, the industry of agriculture has been greatly delayed for several years through the loss of work animals by rinderpest. A specific preventive by inoculation has been found effectual and the disease is now well under control (see BERIBERI).

The establishment of an agricultural bank in 1908 was expected to result in better conditions in the agricultural industries. This, for several reasons, however, has not been realized. Owing to the delay in establishing title under the Torrens system, which is the basis of the credit extended by the bank, only a few loans have been made. The capital is too small to bring about any substantial result. Unless the bank should establish more agencies at central points where loans can be negotiated with a minimum expense to borrowers, the utility of the bank will fail or will be confined to a comparatively small area. The increase in the exportation of agricultural products as a result of the tariff will be indicated in the section *Commerce* below.

The principal agricultural products of the islands are sugar, rice, hemp and tobacco. Coconut oil is also made. Coffee was formerly grown in considerable quantities in the islands, but efforts to produce it have been abandoned and hemp has been substituted as a more profitable crop. Developments in agriculture during the American occupation have been delayed by a series of destructive typhoons and also by an epidemic of rinderpest as noted above.

**COMMERCE.** The commercial returns for the fiscal year 1910 in comparison with those of 1909 may be roughly considered as showing the effects of the tariff legislation of August 5, 1909, by which free trade, subject to certain limitations was extended to the islands. Both imports and exports in the first year of the new law reached an unprecedented figure. The value of the imports for the fiscal year 1910 was \$37,067,630 as compared with \$27,792,397 in 1909, while the value of the exports increased from \$30,993,563 to 39,864,169. This increase in the aggregate trade value of the year is, to an extent, discounted by the fact that the recent commercial depression throughout the world was still felt in the Philippines in 1909 making the figures abnormally low, while the imports of 1910 were somewhat affected by the withdrawal under the present tariff of the free entry privilege previously extended to government supplies.

The net result of the year, however, shows that the establishment of free commercial relations between the two countries marks a new era in the material development of the islands. Of the total value of imports, about two-thirds is included under cotton, rice, iron and steel, meat and dairy products, wheat flour, illuminating oil, coal and cattle. The chief articles of import and export and their value in the fiscal years 1909 and 1910 are shown in the table at the top of next page.

The imports of iron and steel as is indicated in the table show a large increase. This may be credited almost wholly to the American product. British iron and steel amounted to \$701,211 against \$518,196 in 1909. The coal trade for 1910 was characterized by increased volume and change in source. Imports from Australia

amounted to \$473,773; from Japan \$411,557; while Borneo coal was an increasing but minor factor in the trade. Under the tariff advantage of 25 cents a metric ton, there were no commercial imports of coal from the United States. A very material reduction was made by the new tariff on the import duty on illuminating oil and this trade almost doubled in value. Of this American oil made almost the entire total.

In the export trade the leading place heretofore held by the United States in consequence of the large American demand for hemp, became more pronounced in 1910 by heavy purchases also of sugar and cigars under free trade. Of the total exports, shipments to the United States amounted to \$18,741,771 or 47 per cent. as compared with \$10,215,331 or 33 per cent. in 1909. Large quantities were marketed in all of the five great export staples except in unmanufactured tobacco, which showed a slight decline. The increase in the output of hemp and cigars was large. Hemp production continued to increase heavily and a new record was established of 168,090 tons as compared with 147,621 tons in 1909.

A steady increase in price characterized the copra trade throughout the year, with an average price of over 3½ cents as compared with 3 cents in 1909. The quantity also increased. France was the largest purchaser. Considerable quantities were sold to Spain and Germany. Exports of sugar amounted to \$7,040,690, which is an increase of \$2,667,353. The quantity exported was 15,095 tons more than in 1909, but the favorable condition was due chiefly to prices, the annual average of which increased from 1¼ cents in 1909 to 2½ cents in 1910.

The effect of free trade was shown in the cigar industry, the export production of cigars reaching 196,192,000 against 115,977,000 in 1909, an increase of approximately 70 per cent. This was taken almost entirely by the newly opened American market. With the largely increased demand for cigar leaf in the local manufacturing industry there was an advance in the price and a reduction in the quantity of leaf exported.

Among the minor products of the islands the most notable feature is to be found in the hat trade, which increased in value from \$168,522 in 1909 to \$290,356 in 1910 and showed the effect of free entry into the United States upon an industry well adapted to Philippine conditions.

The total shipments of merchandise from the United States to the Philippines in the calendar year 1910 amounted to \$19,941,539 as compared with \$13,791,595 in the calendar year 1909. The shipments to the United States from the Philippines during the calendar year 1910 were valued at \$18,040,741, compared with a value of \$13,556,916 in the calendar year 1909. Of the exports to the United States in the calendar year 1910 manila hemp represented the largest value, \$8,662,926. This was a slight decrease from the value of the export of 1909, which was \$10,108,698. The cigars, cigarettes and cheroots imported to the United States in the calendar year were valued at \$1,878,938 as compared with the value of the export for 1909 of \$378,868.

**EDUCATION.** The public educational work in the Philippines is under the supervision of the Secretary of Public Instruction, and is performed through the Bureau of Education, at the head of which is the Director of Education. The Archipelago is divided into 36 educational divisions, each in charge of a Division Superin-

Articles	1909		1910	
	Total	U. S.	Total	U. S. a
<b>Imports</b>				
Animals	Dollars 839,334	Dollars 70	Dollars 935,837	Dollars 111
Meat and dairy products	2,176,943	221,287	2,377,466	333,298
Rice	4,250,223	.....	5,324,462	.....
Wheat flour	1,172,322	601,947	1,534,442	1,098,823
Vegetables	567,015	65,496	664,727	113,162
Coal	461,465	.....	972,341	.....
Cotton and manufactures of	6,944,978	590,635	8,522,307	2,120,587
Iron and steel and manufactures of	1,933,475	818,991	3,305,701	1,970,490
Leather and manufactures of	494,138	354,185	760,463	575,730
Paper and manufactures of	457,543	120,339	638,828	227,951
Wood, and manufactures of	349,210	156,466	488,677	205,534
Mineral oils	699,607	459,304	1,302,362	1,090,686
Spirits, wines and malt liquors	593,633	129,388	555,191	205,002
Miscellaneous	6,852,511	1,173,682	9,687,326	2,833,927
Total	2,218,836	49,559	10,627,063	9,506,255
	25,573,561	4,642,211	26,440,567	1,269,046
Grand total	27,792,397	4,691,770	37,067,630	10,775,301
Import duties collected	6,622,947	918,012	6,754,025	242,050
<b>Exports</b>				
Hemp	15,833,577	8,534,288	17,404,922	10,399,397
Sugar	4,373,338	881,218	7,040,690	5,495,797
Tobacco and manufactures of:				
Leaf	1,662,269	.....	1,619,744	2,176
Cigars	1,083,702	43,818	2,973,630	1,906,447
All other	46,282	241	44,121	12,839
Copra	6,657,740	287,484	9,153,951	447,145
Miscellaneous	1,336,655	468,282	1,627,111	477,970
Total	30,993,563	10,215,331	39,864,169	18,741,771
Export duties collected, including wharfrage	1,736,329	692,725	1,329,183	309,353

a Imports from and exports to the United States subsequent to August 5, 1909, under certain limitations, are free of duty.

tendent, embracing in all 460 school districts, each in charge of a supervising teacher. The total number of schools in operation during the fiscal year 1910 was as follows: Primary schools, 4595, an increase of 401 over 1909; intermediate schools, 198, an increase of 5 over 1909; secondary schools 38, an increase of 1 over 1909; total: 4731 as compared with 4424 in 1909. The arts and trades, normal, domestic science, agricultural and special insular schools are included in intermediate or secondary schools. The teaching force maintained directly by the Insular Government is approximately 1742, of which 732 are American teachers. The force of Filipino Insular teachers was increased to 1010, of whom 823 were men and 187 were women. Of the men, 145 were engaged in district supervision; 2 men were giving secondary instruction, and 211 men and 82 women were teaching in intermediate schools, while 465 men and 104 women were teaching in primary schools.

The total enrollment during the school year was 587,317, exclusive of 4946 pupils enrolled in the schools of the Moro Province. The average monthly enrollment during the school year was 427,165 and the average monthly attendance was 337,307. The monthly enrollment of pupils for September was 451,938, representing a considerable advance over the enrollment in any other month since the establishment of the Bureau of Education.

The total number of American and Filipino teachers and apprentices employed during the year advanced to 9007 as against 8774 for the preceding year. Of the 8275 Filipino teachers employed, 1010 receive salary from the Insular Government, 7120 from municipal governments, and 145 were apprentices, working without pay. The average compensation of the Filipino In-

sular teachers was \$22.33 monthly; of the municipal teachers, \$9.14½.

The school enrollment in primary and intermediate grades for the month of February, 1910, was 445,826, of whom 381,878 were engaged in some form of industrial work. Of this number, 214,054 were receiving instruction in hand weaving; 3741 in loom weaving; 69,311 in gardening and other agricultural work; 12,461 in woodworking; 270 in iron working; 46,570 in bamboo working; 613 in pottery; 16,460 in domestic science and household arts; 40,840 in miscellaneous industries, and 128,119 first and second grade pupils were occupied in various kinds of busy work which bear a direct relation and lead normally to the practical handwork of higher classes. A large proportion of the pupils were of course engaged in more than one of these lines.

The current appropriation for the Bureau of Education amounted to \$1,637,500. This was augmented by other appropriations and transfers of funds to \$1,782,166.24 available for expenditure.

School work among the non-Christian people of the Philippines was continued in 1910 with decided success. For this work there was appropriated \$2600 for non-Christian tribes in Palawan in addition to \$92,500 appropriated for the support of schools in the non-Christian provinces. Schools for the Negritos, of whom there are estimated to be from 25,000 to 30,000, were opened in the provinces of Zambales and various other points in the islands. In these schools are taught reading, writing, knowledge of money values and simple business figuring. Schools were also started among the primitive Malayan people, in the Visayan Islands and in Northern Mindanao. Industrial boarding

schools and village primary schools were established among the Igorotes and other island people of northern Luzon, of whom there are several hundred thousand. As fast as the native boys can be trained as teachers the village schools will be opened in the different communities. Among the subjects taught to the Igorotes are basket-making, truck gardening, pottery, blacksmithing, carpentry, cloth weaving and brass casting.

**CITY OF MANILA.** The government of the metropolis was conducted in 1910 without special incident. Much work has been done in the important matter of street widening and opening. The new sewer and water system is finished and is giving complete satisfaction. The health of the city has been remarkably good, and were it not for the great infant mortality the death rate would compare favorably with any American or European city. There have been a few cases of cholera, but the health officers have kept it from spreading and the city is at present free. There has been no plague and almost no smallpox. Two new sanitary barrios have been established and are proving effective in relieving insanitary, congested districts. Formerly it was the custom of the poor to pay a small rental to a landowner for the privilege of erecting and maintaining a house and to locate it on his land wherever fancy dictated and space permitted, with the result that there are large tracts wholly covered with the cheapest class of houses without a street, alley, sewer, or water pipe in the whole tract. It is manifestly impossible to keep such areas clean, and they are breeding-places for all kinds of disease and epidemics. These are now being condemned and the inhabitants removed to the sanitary barrios, which are prepared beforehand with streets, alleys, and improvements, the houses being removed thereto, or erected thereon, without expense to the individual, who can thus live in a sanitary neighborhood without increased expense.

A census of the city of Manila completed in February, 1910, showed that the total population was 234,409 as against 223,542 in 1907, and as to nationalities was as follows: Americans 5199, Filipinos 195,292, Spaniards 2903, other Europeans 977, Chinese 18,028, all others 1143.

The sanitary sewer system which was completed by the city of Manila at a cost of approximately four million pesos has now been in operation and available for service in a greater portion of the city for a period of one year. A number of houses have been connected with the sewer and the work is still in progress.

**CONSTABULARY.** The strength of the constabulary at the close of the fiscal year 1910 was 296 officers and 4130 enlisted men, 17 officers and 95 men of the medical division, and 1 officer and 80 men with the band—aggregate number 4305, distributed throughout the Archipelago in 138 stations. The Director, four of the Assistant Directors and three Inspectors are detailed from the United States Army.

**BUREAU OF LABOR.** The Bureau of Labor was created by Act No. 1868, passed the legislature on June 18, 1908, and was placed under the control of the Department of Commerce and Police, but did not begin to operate until July 1, 1909.

**POSTS AND TELEGRAPHS.** On June 30, 1910, 556 post-offices were in operation as compared with 553 at the beginning of the fiscal year.

A free delivery municipal letter carrier service was established in 35 municipalities last year. During the present year the free delivery letter carrier service at post-offices outside of Manila was established at 80 additional offices. There were 118 money-order offices at the end of the year, an increase of 79. There were on June 30, 1910, 6,217.96 kilometres\* of Insular telegraph lines, 3,008.78 kilometres of telephone lines, and 1,861,844 kilometres of cables. The total length of Insular telegraph, telephone and cable lines at the close of the fiscal year was 11,088,584 kilometres. At the close of the fiscal year 1910 there were 293 postal savings banks in operation. There were 13,102 accounts as compared with 8782 at the beginning of the fiscal year. The amount of deposits in the bank on June 30, 1909, was 1,681,237.75 pesos as compared with 1,031,994 pesos on June 30, 1909. Of the 13,046 depositors, 8547 were Filipinos.

**RAILROADS.** During the fiscal year 1910, the Manila Railroad Company completed 38.4 kilometres\* of grading; 34.6 kilometres of track were laid, and 27.4 kilometres of line put in operation. Length of lines in operation June 30, 1910, were as follows: Main line, 567.0 kilometres; sidings, 66.3 kilometres; total 633.3 kilometres. There remained to be completed approximately 732.5 kilometres of line. The Philippine Railway Company, during the fiscal year, graded 30.2 kilometres, laid 32.1 kilometres and opened 8.1 kilometres of track for operation, making a total of 168.1 kilometres of track constructed and in operation and 29.0 kilometres constructed and not in operation, leaving 171.5 kilometres to be constructed to complete the length of lines authorized. The total railroad constructed in the Philippines in kilometres at the close of the fiscal year 1910, was as follows: Manila Railroad Company 583, with 732.5 to be constructed; Manila Electric Railroad and Light Company, 39.8, with 5.2 to be constructed; Manila Suburban Railways Company, 9.9, with 10.0 to be constructed; Tarlac Railway Company 20.6; Daet Tramway Company 7.2; Philippine Railway Company 197.1, with 171.5 to be constructed; Insular Coal Company, 12. The total length of road operated in the fiscal year was 824.6 kilometres, with 919.2 to be constructed.

**HEALTH AND SANITATION.** Among the new projects for the Islands is the establishment of hospitals of modern construction where there have been no hospitals of any kind heretofore.

The Philippine General Hospital is almost completed and the equipment has already been secured. A reinforced concrete hospital at Culion was finished and is now occupied; plans have been drawn, land secured, and work virtually commenced on the Southern Island Hospital at Cebu; similar progress has been made toward one at Bontoc; a new dangerous communicable disease hospital and a modern steam laundry are actually under construction at San Lazaro; plans are in progress for a sanitarium at Subul Springs; a tuberculosis camp is nearly ready for occupancy on the outskirts of Manila; and funds are available for hospitals at Tuguegarao, Butuan and elsewhere.

By an enormous expenditure of time, effort and money, cholera has been held in check; smallpox has been further reduced by the continuation of vaccination; beriberi has been eliminated from Culion, and rice regulations enforced

\* Kilometre = 0.62137 miles.

which it is hoped will exterminate it from the Islands, in time; the segregation of all known cases of leprosy has been successfully accomplished except in the Moro Province and the incidence of the disease has markedly decreased as a result. The fight against tuberculosis has been actually begun.

Food inspections have been continued with noticeable improvements in foodstuffs; the markets of Manila now compare favorably with model markets elsewhere; many satisfactory provincial markets have been actually constructed and others projected.

The sanitary barrio idea is in effect in the city of Manila and much low land has been drained and made available from a sanitary standpoint. Definite steps have been taken towards a non-pathogenic water supply for Manila.

During the year 82 new artesian wells were installed making 189 wells that have been completed since 1906 when the boring of artesian wells was first commenced in the Islands.

#### POLITICS AND GOVERNMENT

**VISIT OF THE SECRETARY OF WAR.** The Secretary of War, Jacob M. Dickinson, accompanied by General Clarence R. Edwards, Chief of the Bureau of Insular Affairs, visited the Philippine Islands, arriving in Manila on July 24 and leaving on the evening of September 2. After allotting a fair proportion of his time to the people of Manila, the Secretary visited the provinces of Tayabas, Albay, Samar, Cebu, Iloilo and Capiz, and drove the last spike in the new railroad connecting the towns of Iloilo and Capiz, which was thrown open for the first time on the occasion of his visit. This marks a great advance in the history of the transportation development of the Philippine Islands. The Secretary visited also Moro Province, crossing Mindanao from Camp Overton to Malabang and visiting the towns of Cotabato, Zamboanga, the capital of the Moro Province, and the Island of Jolo, and the town of Puerto Princesa, in the province of Palawan, where the penal colony was inspected.

Upon his visit to Bontoc, the lieutenant-governors from the neighboring subprovinces arrived to meet the Secretary and brought with them numbers of representative people of the tribes they govern. Thus there were gathered in Bontoc a large number of Kalingas, Ifugaos, and Igorotes, with a few Tinguians. Many of these people had never before left the limits of their own subprovince and there had never been, in the history of the islands, such a gathering of savage peoples of different tribes in one place as was witnessed in Bontoc on the occasion of the visit of the Secretary of War.

**FRIAR LANDS** Much notoriety was given during 1910 in Congress and elsewhere by recent sales of Friar lands in the Philippines. These lands amounted in all to 392,000 acres. Of this, 260,000 acres are near Manila, 25,000 are in Cebu and 107,000 are in the provinces of Mindoro and Isabela. There were paid for these lands \$6,930,462 by the United States government. This price was considered large, and it was anticipated at the time of purchase that in the disposal of them there would be a loss to the government. The purchase was made, not as a speculation nor for the purpose of distributing the land but "on political grounds and for the purpose of bringing on tranquillity." The question of distribution was only incidental to

the sale and reimbursement. The main reason for the purchase was to eliminate the friars as landholders. Inasmuch as the Philippine government had burdened itself with a bonded debt drawing interest to get rid of these landholders, it seemed to the government that it would be following the dictates of common sense to dispose of the lands as soon as possible on the most advantageous terms. Proposals had been made for the purchase of lands in the province of Mindoro and it seemed advisable to the government that the sale should be made and it was made. Shortly after this sale had been completed strong opposition developed against the sale of any additional friar lands. This opposition was based mainly upon objection to the investment of any foreign capital and especially American capital in the Islands. The opinion is held by those who mainly voice this opposition that the investment of foreign capital and especially American capital in the Philippines will, in time, develop such a demand for the continuance of American control as will tend to postpone, if not effectually destroy the realization of Philippine independence.

In addition to this opposition charges were made public in Congress and in public prints involving the conduct of certain officers in the Philippines in relation to these sales. These officers were F. W. Carpenter, Executive Secretary and Dean C. Worcester, one of the Commissioners, and Secretary of the Interior. The Secretary of War, during his visit to the islands made a special investigation of these charges. He reported that he found nothing whatever detrimental to the character of either of the men accused, and that they had no improper connection with the sale of the friar lands.

An investigation was authorized by Congress and in November Mr. Worcester and several other officers of the Philippine government sailed for the United States, bringing with them official records in order that they might testify in the investigation. A bill was introduced in the Philippine Assembly demanding the removal of Secretary Worcester, alleging that in a recent speech he had insulted the Filipinos. Petitions from the provinces supported the bill and the native press denounced the Secretary with great bitterness.

**OTHER EVENTS.** In the libel suit brought by Dean C. Worcester, Secretary of the Interior against *El Renacimiento*, the newspaper organ of the Nationalist party, the court awarded to Mr. Worcester \$30,000 damages. In 1909 Secretary Worcester caused the prosecution of the managers of this paper and three members of the staff for criminal libel. Two of the defendants were found guilty, sent to jail and required to pay a fine of \$1000.

In July Mr. Worcester narrowly escaped assassination while on the island of Palawan, where he had attended the installation of the new governor. He was attacked by Moro outlaws, three of whom were killed by the Filipino scouts who came to his defense. A new governor was required on the island because of the death of Lieutenant Edward J. Miller of the regular army, who had been governor since the war with Spain. His service in this capacity had been remarkably successful. After his death the piratical Moros whom he had driven from the island, returned and it was by a band of these that Mr. Worcester was attacked. In August the Philippine constabulary pursued a band



CONFERENCE BETWEEN THE SECRETARY OF THE INTERIOR, THE GOVERNOR OF THE MOUNTAIN PROVINCE, LIEUTENANT GOVERNOR OF  
SUBPROVINCE OF IFUGAO, AND THE HEADMEN OF THE DISTRICT OF QUIANGAN

Digitized by Google

of raiding Moros, and killed the leader, the noted Datto Appa.

**LEGISLATION.** On June 30, 1910, there were on the statute books 1994 laws, 194 of which had been enacted since the inauguration of the first Philippine legislature, on October 16, 1907. Of these 194 laws 161 were enacted by the legislature (20 during the recent special session) and 33 by the Commission acting alone.

The most important laws enacted by the legislature during the special session were as follows:

An act transferring the Bureau of Agriculture from the Department of the Interior to the Department of Public Instruction.

An act providing for the establishment of classes for the instruction and training of male and female nurses under the supervision of the Director of Health.

An act to extend further the powers of the provincial governments in certain particulars.

An act providing for the creation of a commissioned and enlisted service within the Bureau of Navigation, the creation of a pension fund in connection therewith, and for the punishment of offenses against good order and discipline within such service.

An act providing for the establishment of a sanitarium at Sibul, San Miguel de Mayumo, province of Bulacan.

An act extending for a period of ten years during which timber, firewood, resin, stone, earth, and other forest products may be cut and taken from the public forests without the payment of forest charges, subject to certain conditions.

During the year the Philippine Commission, acting within its exclusive general legislative jurisdiction passed the following important acts:

An act to incorporate the city of Baguio.

An act providing for the apportionment and disposition of internal-revenue taxes collected in the Philippine Islands.

Acts making certain acts of the first and second legislature applicable to the territory of the Philippine Islands inhabited by Moros and other non-Christian tribes and legalizing, confirming, and ratifying the collection of taxes and all other action heretofore taken in said territory under the provisions of said acts.

The legislature on adjournment had voted, in accordance with the provision of the act of Congress approved February 27, 1909, to change the date for future sessions to October 16 of each year, the ensuing session to be held on October 16, 1910. As under the provision of this act, No. 1929, no legislative session was provided for the fiscal year 1910, the Governor-General convoked an extraordinary session of the legislature to be held in Baguio on March 28, to continue for 20 days and to consider only such matters as were submitted to it by the Governor-General, as provided for by the act of Congress approved July 1, 1902.

**ADMINISTRATION.** On February 10, 1910, the nomination of Commissioner Newton W. Gilbert, as Vice-Governor of the Philippine Islands, was confirmed by the United States Senate and on February 14, 1910, Vice-Governor Gilbert filed his oath of office and entered upon the duties of said office.

On February 10, 1910, the nomination of Justice Charles B. Elliott of the Supreme Court of the Philippine Islands as member of the Philip-

pine Commission and Secretary of Commerce and Police was confirmed by the United States Senate, and on February 14, 1910, Commissioner Elliott filed his oath of office and entered upon the duties of the two positions.

The personnel of the Commission on June 30, 1910, was as follows:

Hon. W. Cameron Forbes, Governor-General, ex-officio President; Hon. Newton W. Gilbert, Vice-Governor, Secretary of Public Instruction; Hon. Dean C. Worcester, Secretary of the Interior, member; Hon. José R. de Luzuriaga, member; Hon. Gregorio Araneta, Secretary of Finance and Justice, member; Hon. Rafael Palma, member; Hon. Juan Sumulong, member; Hon. Frank A. Branagan, member; Hon. Charles B. Elliott, Secretary of Commerce and Police, member.

**PHILLIPS, STEPHEN.** See LITERATURE, ENGLISH AND AMERICAN, *Poetry and Drama*.

**PHILLIPS, DAVID GRAHAM.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**PHILLPOTTS, EDEN.** See LITERATURE, ENGLISH AND AMERICAN, *Poetry and Drama*.

**PHILOLOGICAL ASSOCIATION, AMERICAN.** See PHILOLOGY, CLASSICAL.

**PHILOLOGY, CLASSICAL.** In 1910 so much valuable work was done in classical philology that little can be attempted here beyond enumeration of the titles of some of the more important works and articles. Occasionally reference is made to publications of 1909, not mentioned in the last YEAR BOOK.

In this country and in England much activity is displayed by the various Classical Associations. In the United States there is, first of all, the American Philological Association, now in its forty-second year of vigorous life. The annual meetings are well attended, and the annual volume of *Transactions and Proceedings* contains much work of value, on a very wide array of topics. The Classical Association of the Middle West and South, the Classical Association of the Atlantic States, and the Classical Association of New England seek to stimulate interest in the classics and to develop better methods of teaching them. The Classical Association of the Middle West publishes *The Classical Journal*, now in its sixth volume; *The Classical Weekly*, published by the Classical Association of the Atlantic States, is in its fourth volume. Both these periodicals devote much attention to the pedagogical aspects of classical study. So too does *The School Review*.

The English Classical Association is interested in questions of Latin pronunciation, in methods of teaching, and especially in the working out of a system of uniform grammatical terminology. A joint committee, representing the Classical Association and numerous other organizations, has just published a tentative report on this subject embodying a number of interesting suggestions, looking to the adoption of identical terms in various languages, ancient and modern, to characterize identical or nearly identical grammatical phenomena. The English Classical Association also owns and publishes *The Classical Review* and *The Classical Quarterly*, both journals of consequence. In June, the Society for the Promotion of Roman [Latin] Studies was organized in London; its duty is to do for Latin studies what has been done so long and so well for Greek studies by the Society for the Promotion of Hellenic Studies.

Other repositories of classical work in the

United States are *The American Journal of Philology* (Baltimore), edited through all its volumes by B. L. Gildersleeve, and *Classical Philology*, published at Chicago. Articles in the former that may be named here are "The Seventh Nemean Revisited," B. L. Gildersleeve; "Latin Inscriptions in the Johns Hopkins University," H. L. Wilson; "New Greek Inscriptions from Attica," D. M. Robinson; "Laurel in Ancient Religion and Folk-Lore," M. B. Ogle; "The Final Monosyllable in Latin Prose and Poetry," A. G. Harkness; "Serviana," E. G. Sihler, a study of Servius as man, grammarian and rhetorician; "Relative Temporal Statements in Livy," R. B. Steele, which sets up a new theory of the origin of the subjunctive *cum*-clause by deriving that clause from indirect discourse. Two reviews, one by K. F. Smith of Duff's *A Literary History of Rome*, the other by E. W. Fay of Friedrich's edition of Catullus, may be singled out as distinct contributions to the study of Latin literature.

From *Classical Philology* we may name the following articles: "The Boeotian Federal Constitution," R. J. Bonner; "The Athenian Phratries," W. S. Ferguson; "Studies in Greek Noun-Formation," E. H. Sturtevant; "Early Mediæval Commentaries on Terence," E. K. Rand; "Propertius as Præceptor Amoris," and "Erotic Teaching in Roman Elegy," A. L. Wheeler (the author seeks to weaken belief in the indebtedness of the Roman elegiac poets to Alexandrian influences). Several writers deal minutely with textual criticism: F. W. Shipley writes on the text of Livy, E. T. Merrill and F. E. Robbins on that of Pliny, and B. W. Ullman on that of Catullus. The book reviews are also of a high order.

Volumes of classical studies published by various Universities (California, Columbia, Cornell, Harvard, Michigan, Nevada), as well as numerous dissertations, also bear witness to the amount and to the wide range of the classical work done in the United States.

In Germany, too, much attention is devoted to the development of the best methods of teaching the classics, and to the production of works which shall help to orientate the student and make his path easier. Mention may be made of such unpretentious, but useful works as W. Kroll, *Das Studium der klassischen Philologie*, O. Immisch, *Wie studirt man klassische Philologie?* and the earlier book by Dettweiler, *Lateinischer Unterricht* (second edition, 1906). Much more pretentious than these and most distinctly useful is a work entitled *Einleitung in die Altertumswissenschaft*, by A. Gercke and E. Norden, in three volumes, two of which have already appeared (Leipzig), containing articles by various distinguished scholars on such topics as *Methodik*, *Sprache*, *Antike Metrik*, *Griechische und römische Literatur*, Greek and Roman Private Life, Art, and Religion. One especially valuable feature of the discussions of Greek and Latin literature is formed by the sections dealing with the sources, with *Gesichtspunkte und Probleme zur Erforschung der griechischen und römischen Literatur*; here experts indicate many fields in which work yet remains to be done in the study of Greek and Latin literature, setting forth what has been done and showing the lines along which new studies should proceed. The work does this far better than it was done by Freund's obsolete *Triennium Philologicum*. Useful too is G.

Fock's *Catalogus Dissertationum Philologicarum Classicarum*, a list of 24,000 dissertations.

In the field of inscriptions we may notice especially Wilhelm's *Beiträge zur griechischen Inschriftenkunde* (Vienna), of prime importance; Fr. Solmsen, *Inscriptiones Græcæ ad illustrandas Dialectas Selectæ*, a third edition of a well known work; O. Marucchi, *Epigrafia cristiana*; in the Manuali Hoepli series, published at Milan, an excellent handbook. Besides a general introduction and bibliography there are 491 inscriptions, classified according to their bearing on the Church and its doctrines; there are also 80 good plates. Progress was made by H. Collitz's *Sammlung der griechischen Dialekt-Inschriften* (Band IV, 3 Heft, with Grammatik, etc., zur 1 Hälfte des 3 Bandes). Of special interest to Americans is H. A. Sanders, *The Old Testament Manuscripts in the Freer Collection. Part I: The Washington Manuscript of Deuteronomy and Joshua*. The book discusses elaborately one of the four manuscripts of the Bible which Mr. Charles L. Freer of Detroit bought at Cairo in 1906. Professor Sanders dates the Washington Manuscript in the earlier half of the fifth century, A. D. As noted above, inscriptions have received much attention in *The American Journal of Philology*. For results in Roman epigraphy reference may be made, as last year, to *L'Année Epigraphique*.

Important works on religion and mythology are R. Reitzenstein, *Die hellenischen Mysterienreligionen, ihre Grundgedanken und Wirkungen*, reviewed in *The American Journal of Philology*; J. C. Lawson, *Modern Greek Folklore and Ancient Greek Religion: a Study in Survivals*, reviewed in *The Classical Review*; subject to the limitation which the author imposed upon himself when he elected to confine his attention to survivals of ancient Greek religion, the work is rated very highly; P. Stengel, *Opferbräuche der Griechen*. Franz Cumont's *Die orientalischen Religionen im römischen Heidentum* has been translated into German by G. Gehrich. Though American scholars have as yet produced no books on Greek or Roman religion, aside from *Greek Religion*, by A. Fairbanks, Director of the Boston Museum of Fine Arts, papers at the meetings of the American Philological Association and at those of the Archæological Institute of America, as well as short articles and reviews in various periodicals, give testimony to increasing interest in this field of classical study.

Lexicography is fairly well represented. Olcott's *Thesaurus Linguae Latinae Epigraphicae* is progressing. H. van Herwerden brought out the second edition, very much enlarged and improved, of his *Lexicon Græcum Suppletorium et Dialecticum* (Leyden); important too is A. Kyriakides's *Modern Greek-English Dictionary, with a Cypriote Vocabulary* (London), a revised edition; Volume 3, Fascicule 6 (*cito-coetus*) and Volume 5, fascicule 1 (*d-decus*) of the great *Thesaurus Linguae Latinae* (Munich) appeared; several parts of Rocher's *Ausführliches Lexicon der griechischen und römischen Mythologie* also were published (the work has reached *seismos*); Stowasser's *Lateinisch-Deutsches Schul- und Handwörterbuch* appeared in a third edition by Petschenig (Vienna and Leipzig). H. Merguet, who has done so much for the lexicographical study of particular authors, has carried a *Lexikon zu Vergilius* through two parts of 80 pages each.

In the field of syntax some work of interest

has appeared. The treatment of Latin grammar and style in Müller's *Handbuch* by F. Stolz and J. H. Schmalz reached its fourth edition last year; the book is very much enlarged and is more important than ever to the careful student. In America a notable event was the publication of Volume I of *The Syntax of Early Latin: The Verb*, by Charles E. Bennett. The book aims to cover the whole field of the uses of the verb in Latin down to 100 B. C. It is thus much wider in scope than Holtze's *Syntaxis Priscorum Scriptorum Latinorum*, which it will at once supplant. Students of Plautus and Terence in particular will find the book indispensable, even though inevitably, in this first edition, the author has not in fact, in many instances, made as exhaustive a collection of examples as he feels certain, according to his preface, he has made. It is at once more extensive, however, and more conveniently arranged than Lindsay's *Syntax of Plautus*, published several years ago.

C. D. Buck published an *Introduction to the Study of Greek Dialects*; Thumb's *Handbuch der neugriechischen Volkssprache* reached a second edition. Volumes 2 and 3 of *Grammatici Graeci Recogniti et Apparatu Critico Instructi*, by R. Schneider, a companion work to Kell's *Grammatici Latini*, were published.

Some interesting books on Greek and Roman life appeared. Easily first in interest is E. N. Gardiner's *Greek Athletic Sports and Festivals*, a very excellent book, in which the author gives the results of many years of careful and competent study. T. G. Tucker has published *Life in the Roman World of Nero and St. Paul*. *The Imperial Civil Service of Rome* is the title of a book by H. Mattingly (Cambridge University Press). Less scholarly and more popular is W. S. Davis, *The Influence of Wealth in Imperial Rome*; the author claims to be breaking new ground. He belongs to the school of Ferrero in the stress he lays on economic considerations as a factor in Roman history. Friedländer's invaluable *Darstellungen aus der Sittengeschichte des Roms* is appearing in the eighth edition (four volumes; the first has been published). Mention may be made also of J. Jüthens's *Philostratus über Gymnastik*; the introduction and commentary are excellent, and the book is well-nigh a complete history of ancient *Gymnastik*. Lastly a delightful book published in 1909 is *Greek Lands and Letters*, by Mr. and Mrs. F. G. Allinson, a description of parts of Greece lighted up by numerous translations of passages in Greek authors who mention the place under discussion.

Probably the most important work of the year was done in the field of Greek and Latin literature, not only in the way of important editions of classical authors, but in the revision of standard general histories of the literatures of Greece and Rome.

Under the latter head belongs, in part, the *Einleitung in die Altertumswissenschaft*, by Gercke and Norden, mentioned above. W. Schmid brought out another part of his thorough-going revision of W. von Christ's *Geschichte der griechischen Litteratur* (Part II, first half). This part covers the postclassical period, in particular the New Attic Comedy. Schanz's *Geschichte der lateinischen Litteratur*, a part, as Christ's book is, of Müller's *Handbuch*, reached its third edition in the second half of part one, which deals with the literature of

the Republic from the Social War onward. Teuffel's well known *Geschichte der römischen Litteratur* is undergoing revision, by W. Kroll and F. Skutsch; the letterpress is not much altered, but in the new edition the bibliography, the distinctive merit of Teuffel, is far less ambitious and exhaustive, a rather regrettable fact. The second volume of the revision has appeared, covering 31 B. C. to 96 A. D.

Turning to work less wide in scope we note first that the year has been extraordinarily fertile in studies in Homer, of first-rate importance. The general tendency of these works has been in the direction of regarding the Homeric Poems as giving a fairly consistent picture of a single, actual civilization, and as the work of one creative poet. The books of first interest here are August Fick, *Die Entstehung der Odyssee und die Versabzählungen in den griechischen Epen* (Göttingen); A. Lang, *The World of Homer*, in which Mr. Lang fortifies the position taken in his *Homer and the Epio*; Muelder, *Die Ilias und ihre Quellen* (Berlin); C. Rothe, *Die Ilias als Dichtung* (the author began his Homeric studies as a follower of Kirchhoff; but he now concludes that the reasons for believing in a single creative Homer are unanswerable); P. Cauer, *Grundfragen der Homerkritik*, second edition (Leipzig); F. M. Stawell, *Homer and the Iliad*, an essay to determine the scope and characteristics of the original poem.

We may conclude by listing some of the important editions of classical authors which appeared during the year: the *Agamemnon* of *Æschylus*, a posthumous work of W. Headlam, completed by A. C. Pearson; *Aristophanes Acharnians*, by J. M. Starkie, *Knights*, by B. B. Rogers; *Dionysius Halicarnassus de Compositione*, by W. Rhys Roberts; *The Bacchantes of Euripides and Other Essays*, by A. W. Verrall; *Hesiod, Erga*, by W. Meyer; *Menander, Four Plays*, by E. Capps, an excellent edition of the new fragments of Menander discovered within the last few years; *Pausanias*, the concluding part of the definitive edition by Hitzig and Blümner; the *Characters of Theophrastus*, a revision of the fine edition by Sir Richard Jebb which has long been out of print (the revision is by J. E. Sandys); *Ammianus Marcellinus*, Volume I, by C. U. Clark, of Yale University, an edition of the text which will supplant all other text-editions and which ranks first among textual editions by American classical scholars, if indeed the book has any peer in the United States. Due heed has been given to the rhythmical clausulæ in Ammianus. This subject has been handled at length by Professor Clark's pupil, Professor A. M. Harmon, in a long paper entitled *The Clausulæ in Ammianus Marcellinus*, published in Volume 16 of the *Transactions of the Connecticut Academy of Arts and Sciences*; *A Bibliography of Persius*, by M. H. Morgan; *Seneca, Questiones Naturales*, a translation by J. Clarke, with notes on the Latin treatise by Sir A. Geikie; *Varro, De Lingua Latina*, etc., by G. Goetz and F. Schoell; *Apuleius, Cupid and Psyche*, by L. C. Purser, the first separate edition in English of this piece (the introduction deals elaborately with Apuleius's life, his language and his style; the notes are full); *Stobæi Anthologium*, Volume 4, by C. Wachsmuth and C. Hense. The minor poems attributed to Vergil have attracted much attention; we may note C. Plérent, *Le Culex: Étude sur L'Alexandrinisme latine*, and

*Le Culex: Poème Pseudo-Vergilien. Édition critique et explicative* (Paris, both); Birt, *Jugendverse u. Heimatpoesie Vergils*, discussed in a lecture by R. Ellis (Oxford University Press).

Mention may now be made of *Addresses and Essays*, M. H. Morgan; *Platon*, C. Ritter, Volume 1, accounted a good book, discussing Plato's life, and classifying and analyzing the various dialogues, and *Neue Untersuchungen über Platon*, by C. Ritter (the latter is a republication of his *Studies in Plato* since 1889); H. Diels, *Die Fragmente der Vorsokratiker*, Volume 2, second half (Berlin); Daos: *Tableau de la Comédie grecque pendant la période dite nouvelle*, by Ph.-E. Legrand, a voluminous book dealing with many matters nowhere else discussed, at least with fulness, relating to the content and the form of the New Attic Comedy; W. Ridgway, *The Origin of Tragedy, with Special Reference to the Greek Tragedians*. At the very close of the year appeared *A Companion to Latin Studies*, edited by J. E. Sandys, a companion volume to Whibley's *A Companion to Greek Studies*. The book contains in nearly 900 pages many articles by different scholars which aim to cover the whole field of Latin studies. Valuable as the book is, sometimes the treatment is entirely too brief; this is especially true of the discussion of Latin metre.

**PHILOLOGY, MODERN.** The most noteworthy feature in the history of philology for the year 1910 is the activity of Slavic and Celtic scholars. The general tendency of the last few years has been toward these two extremely rich fields, which afford such exceptional opportunities for research. The Romance languages, by reason of their varied dialects and vast literature, have also received considerable attention. In Germanics and English there has been a slight decline in works of importance.

**SLAVIC PHILOLOGY.** Probably the most important work in the Slavic field is the monumental *Geschichte der slavischen Philologie* (1910, 961 pages), written in Russian and German by the venerable Professor Jagić. In addition to philology, in the narrower sense, this work treats of the literature, law and ethnography of the Slavic peoples. J. Peisker, in his *Neue Grundlagen der slavischen Altertumskunde* (Berlin, 1910), places the primitive home of the Slavic races in the swamps of Polesia, though we must admit that his arguments are not always convincing. Berneker's well-known *Etymologisches Wörterbuch der slav. Sprachen* has now reached the sixth *lieferung*. Other works worthy of mention are Bogorodizky's *Kurzer Abriss der Dialektologie und der Geschichte der russischen Sprache* (Kazan, 1910), and Slonski's *Die Uebertragung der griechischen Nebensatzkonstruktionen in den albulgarischen Sprachdenkmälern* (Kirchhain, 1908), Šćepkin's *Lehrbuch der bulgar. Sprache* (1909) is worthy of notice, notwithstanding its defects. Vondrák's *Kirchenslavische Chrestomathie* (Göttingen, 1910) and Durnowo and Ushakov's *Chrestomathie der grossrussischen Dialektologie* (Moscow, 1910) are very helpful. The most important dictionaries published during the year are Mizatek's *Bulgarisch-russisches Differential-Wörterbuch*, which also contains a complete grammar of Bulgarian (St. Petersburg, 1910), and Kout's *New Croat-Servian Dictionary* (*Novy kapesní slovník srbocharvatský a průvodce po jazyku srbocharvatském*, Trebitsch, 1910). Finally, we must

not omit Dr. Trautmann's excellent *Altpreussischen Sprachdenkmäler* (Göttingen, 1910), which, besides being carefully edited, contains a complete grammar and dictionary.

**GERMANIC PHILOLOGY.** Turning to the Germanic languages, our attention is called at once to Manacorda's *Germania filologica* (Cremona, 1910), a bibliography of the German language and literature, containing some 20,000 titles. The 7th edition, revised and enlarged, of Kluge's *Etymologisches Wörterbuch der deutschen Sprache* (Strassburg, 1910) is a valuable addition to philology. Professor Delbrück's *Germanische Syntax I* (Leipzig) is devoted to the negative sentence. Professor Wright's *Grammar of the Gothic Language, and the Gospel of St. Mark* (Oxford) is well adapted to the needs of the English student. Two useful lexicographical contributions are Jelinek's *Mittelhochdeutsches Wörterbuch zu den deutschen Sprachdenkmälern in Böhmen* (Heidelberg, 1910) and the 30th *lieferung* of Fischer's *Schwäbisches Wörterbuch* (Tübingen, 1910). The subject of Minutti's interesting *Mitologia tedesca* (Milan, 1910) is the conception of the divinity. In his two works entitled *Das altfranzösische Siegfriedlied* (Kiel, 1908) and *Von mittelhochdeutschen Volksepen französischen Ursprungs* (*Erster Teil*, Kiel, 1910), Gustav Brockstedt claims a French source for the Nibelungenlied, the Siegfriedlied, Gudrun and other Middle High German poems. Other notable works are Fischer's *Die Lehnwörter des Altwestnordischen* (Berlin, 1909), Loewe's *Deutsches Wörterbuch* (Sammlung Götschen), Ranke's *Die deutschen Volksagen* (Munich) and Wertke's *Sächsische Volkskunde* (Leipzig). In Dutch, we note the excellent *Mittelniederländische Grammatik mit Lesebüchern und Glossar* of J. Franck (Leipzig).

**SCANDINAVIAN PHILOLOGY.** The Scandinavians are submitting their languages to rigorous study; and their work is of a very high quality. Noreen's *Grunddragen av den fornsvenska grammatiken* (Stockholm, 1910) is worthy of this distinguished scholar. A much needed elucidation of the complicated vowel-system of Swedish is found in Kock's *Svensk Ljudhistoria, II, Enkla Vokaler* (Lund). Söderwall's *Ordbok öfver svenska Medeltids-Språket* (Lund, 1910) is a most welcome lexicon. In Danish, Falk and Torp's *Norwegisch-dänisches etymolog. Wörterbuch* was continued (17th *lieferung*), and Kalkar's monumental *Ordbog til det aeldre danske Sprog (1300-1700)* reached its 49th *heft* (Copenhagen, 1910). Mention should also be made of vol. III of *Islandica*, an annual relating to the Fiske Icelandic collection in the Cornell University Library. This volume contains a *Bibliography of the Sagas of the Kings of Norway*, etc., by H. Hermannsson (New York, 1910). Finally Zoëga's *Concise Dictionary of Old Icelandic* (Oxford, 1910) is very useful.

**ENGLISH PHILOLOGY.** Viëtor's *Einführung in das Studium der englischen Philologie* (Munich) reached its 4th edition; and Zupitza's *Alt- und mittelniederländisches Übungsbuch* was also reprinted (Leipzig, 9th ed.). Sedgefield's *Beowulf*, edited with biography, glossary, etc. (London, 1910) and Panzer's *Beowulf-Studien* (Leipzig) are the most important contributions to Beowulfian literature. Trampe Bödtker's *Critical Contributions to Early English Syntax, 2d series* (Christiania, 1910) treats of the pronouns. Other works of importance are Charles Butler's

*English Grammar* (1634), reprinted and edited by A. Eichler (Halle, 1910), Tupper's *The Riddles of the Exeter Book* (Boston, 1910), and the continuation of Dr. Murray's *Oxford English Dictionary*. Lannert's *Investigation into the Language of Robinson Crusoe as Compared with That of Other 18th Century Works* (Upsala, 1910) completes our list.

**ROMANCE PHILOLOGY.** The most absorbing topic in Romance philology has been the bitter attack of Rajna and Clœtta in behalf of the old school on the revolutionary doctrines of Bédier. Notwithstanding these objections, scholars are now agreed that Bédier has proved in his *Légendes épiques*, by means of his remarkable discoveries, that the *jongleurs* and monks "se sont entendus pour exploiter les traditions carolingiennes." Behrens' *Beiträge zur französischen Wortgeschichte und Grammatik* (Halle, 1910) is a careful work. *Les Mélanges de Philologie romane et d'histoire litt. offerts à M. Maurice Wilmotte* on the 25th anniversary of his professorship (2 parts, Paris, 1910) contains contributions from almost all the famous Romance scholars of Europe. Mario Roques has published the first part of *Gaston Paris, Mélanges de Litt. franç. du Moyen Age* (Paris, 1910). The last fascicule of the monumental *Atlas linguistique de la France* of Gilliéron and Edmont (Paris, 1910) also appeared. Faral's *Les Jongleurs en France au Moyen Age* (Paris, 1910) and Beck's *Les Mélodies des Troubadours* (Paris, 1910) are both epoch-making works. Devic's supplement to Littré's *Dict. de la Langue franç.* (Paris, 1910), Lecomte's *Le Parler Dolois* (Paris, 1910), and Westerbled's *Baro et ses dérivés dans les langues romanes* (Upsala, 1910) are worthy of note. The Rumanian Academy's *Dictionarul Limbii Române*, which has now reached its 5th fascicule, supplies a long-felt want. Trabalza's *Storia della grammatica italiana* (1908) is a remarkable work in which philosophy, philology, pedagogy and æsthetics are combined. Bertoni's study on *Buvallesi, Trovatore bolognese* (1908) and Frisoni's *Dizionario genovese-italiano e italiano-genovese* (Genoa, 1910) are useful. In Provençal, we note Levy's *Provenzalisches Supplement Wörterbuch* (Leipzig, 1910), containing additions and corrections to Raynouard's *Lexique roman*, and Wechsler's *Das Kulturproblem des Minnesangs* (vol. I, 1909). In Spanish, Pidal published the series of lectures given at Johns Hopkins University under the title *L'épopée espagnole* (Paris, 1910). Plaza y Salazar's *Etimologías vascongadas del Castellano* (Bilbao, 1910) is useful, if controlled. Professors Todd and Weeks of Columbia University, with the coöperation of a number of professors of other American universities, have founded the *Romanic Review*, a quarterly journal devoted to research in the field of early Romance languages and literatures. The first volume appeared during the year 1910. This is the first review in English devoted entirely to this field.

**CELTIC PHILOLOGY.** The Celtic scholars have been active. The indefatigable Holder published the 19th *Lieferung* of the third volume of his *Alt-keltischer Sprachschatz* (Leipzig, 1910); and Thurneysen completed the *Texte mit Wörterbuch* of his *Grammatica*. The second volume of Déchelette's monumental *Manuel d'Archéologie préhistorique celtique et gallo-romaine* also appeared (Paris, 1910). Other notable works

are Philippon's *Les Ibères: Etude d'histoire, d'archéologie et de linguistique* (Paris, 1909), the late Whitley Stokes's *A Supplement to Thesaurus Palæohibernicus* (Halle, 1910), and the third volume of Camille Jullian's remarkable *Histoire de la Gaule* (Paris, 1910), a veritable mine for the philologist. The late Professor Strachan's *Introduction to Early Welsh* (Manchester, 1909), containing a middle Welsh reader and glossary, supplies a long-felt want. Mention should also be made of O'Maille's *Language of the Annals of Ulster* (Manchester, 1910), Bergin's *Stories from Keating's History of Ireland*, edited with notes and glossary (Dublin, 1910), *Duanair Fionn, the Book of the Lays of Fionn*, edited and translated by E. MacNeill (London, Irish Texts Society, 1908), and Marstrander's *Fleadh Duin na nGéadh agus Cath Muighe Rath*, edited with introduction and glossary (Christiania, 1910). In Welsh, we note the following: Arthur Jones's *History of Gruffydd ap Cynan*, with translation and notes (Manchester, 1910) and Anwyl's *The Poetry of the Gogynfeirdd*, with an introduction to the study of Old Welsh Poetry (Denbigh, 1909). G. P. Williams's *The Preverbal Particle Re in Cornish* (Halle, 1908) and Jamieson's *Dictionary of the Scottish Language*, revised by Dr. Longmuir and Mr. Metcalfe (London, 1910), should not be omitted. Finally Lindsay's *Early Irish Minuscule Script* (Oxford, 1910) is of importance for both philology and paleography.

**PHILOSOPHY. RECENT TENDENCIES.** The keen interest in philosophy which has marked the end of the nineteenth and the beginning of the twentieth centuries may be said to be growing instead of diminishing. Ever since the reaction had set in against post-Kantian speculation, the theory of knowledge has been assiduously studied, and the history of philosophy, which received such an impetus from Hegel, has been pursued with diligent care. But for many years after the rise of the natural sciences and their mechanical interpretations of the universe, metaphysics assumed an apologetic tone or did not speak at all. The period of diffidence now seems to have passed, and there is intense activity in all the fields of philosophy, in metaphysics, ethics, æsthetics, the philosophy of law, the philosophy of religion, as well as in epistemology and the history of philosophy. We note that this activity is not restricted to any one of the civilized nations and that the thinkers of different countries are coöperating more and more in the solution of problems; even the Germans, who have shown a tendency, for many years, to ignore the writings of their English and American contemporaries, are beginning to discuss and translate their works. It is even held by some that the philosophical hegemony is passing out of the hands of the Germans; however that may be, the present leaders of philosophy in France, Italy, England, and America are producing works of merit. We also note that the occupation with philosophical problems is becoming more popular among mathematicians and natural scientists, as well as among students in other branches of knowledge, and that the insufficiency of the materialistic conception of the world is acknowledged, at least among the leaders of science.

**OPPOSING SCHOOLS.** Within the domain of epistemology, which is still the most important subject of study, the controversy between the idealists, on the one hand, and the pragmatists,

realists, empiricists, and pluralists, on the other, has not come to an end. The death of the greatest figure in the radical camp, Professor William James (q. v.), occurred during the year and caused universal sorrow. A group of younger American philosophers has promulgated a "platform of the realists," which formed the chief topic of discussion at the last meeting of the American Philosophical Association, where, also, many papers were read upon this question. The differences between the idealists and pragmatists are more thoroughgoing than those between idealists and realists, concerning, as they do, the problems of the nature and origin of knowledge, the criterion of truth, and the entire structure of experience. In spite of the attacks, however, which have been made upon it, objective idealism may still be regarded as the dominant theory: the result of the controversy has been a clarification of ideas and a greater emphasis upon phases of experience which had been more or less neglected.

**LITERATURE OF RECENT MOVEMENTS.** A notable article by A. Chiappelli on "The Vital Tendencies in Contemporary Philosophy" (*Revue Philosophique*, March, 1910) throws much light on the present situation. The following books also discuss the recent movements: Fabbriotti, *Appunti critici di filosofia contemporanea*; Thilly, *Contemporary American Philosophy in Studies in Language and Literature*; Walker, *Theories of Knowledge: Absolutism, Pragmatism, Realism*; Lyman, *Theology and Human Problems: A Comparative Study of Absolute Idealism and Pragmatism as Interpreters of Reality*; A. Chiappelli, *Dalla critica al nuovo idealismo*; L. Chiappelli, *La filosofia dell'assoluto in Inghilterra e in America*; de Laguna, *Dogmatism and Evolution*; Schinz, *Anti-Pragmatism*; O'Sullivan, *Old Criticism and New Pragmatism*; A. W. Moore, *Pragmatism and its Critics*; Bawden, *Principles of Pragmatism*; Switalski, *Der Wahrheitsbegriff des Pragmatismus nach William James*; Gillouin, *Henri Bergson*; Dolson, *The Philosophy of Henri Bergson* (articles in *Philosophical Review*, November, 1910, January, 1911); Archambault, *Emile Boutroux*. An English translation of Bergson's (the leader of the French opposition to idealism) *Time and Free Will* has appeared, and a translation of his *Matière et mémoire* is announced. Schiller, the English humanist, has republished his *Riddles of the Sphinx*.

**WORKS ON LOGIC AND EPISTEMOLOGY** are: Dörner, *Encyklopädie der Philosophie*; Kern, *Das Erkenntnisproblem und seine kritische Lösung*; Dürr, *Erkenntnistheorie*; Rau, *Das Wesen des menschlichen Verstandes und Bewusstseins*; Wodehouse, *The Presentation of Reality*; Bonnucci, *Verità e realtà*; Ramousse, *Essai d'une théorie scientifique du concept de vérité*; Häberlin, *Wissenschaft und Philosophie*; Delvolvé, *Rationalisme et tradition*; Lüdemann, *Das Erkennen und die Werturteile*; Lodge, *Reason and Belief*; Wilhelm Wundt, *Die Principien der mechanischen Naturlehre*, second edition; Volkmann, *Erkenntnistheoretische Grundzüge der Naturwissenschaften*; Natorp, *Die logischen Grundlagen der exakten Wissenschaften*; Oswald Külpe, *Erkenntnistheorie und Naturwissenschaft*; Lourie, *Die Principien der Wahrscheinlichkeitsrechnung*; Paulhan, *La logique de contradiction*; A. Sidgwick, *The Application of Logic*; Bode, *An Outline of Logic*; Meinong, *Ueber Annahmen*; T. V.

Moore, *The Process of Abstraction*; Brunswig, *Das Vergleichen und die Relationserkenntnis*; Lechallas, *Étude sur l'espace et le temps*; Bauch, *Das Substanzproblem in der griechischen Philosophie*; Cassirer, *Substanzbegriff und Funktionsbegriff*; Berkeley, *Mysticism in Modern Mathematics*; Pillsbury, *The Psychology of Reasoning*; Verworren, *Die Mechanik des Geisteslebens*, and McCabe, *The Evolution of Mind*, will also prove helpful in connection with a study of epistemological problems, as will also many of the books to be mentioned under the head of metaphysics, and historical works like the following: Cohen, *Kants Begründung der Ethik*, 2d greatly enlarged edition; Goldschmidt, *Zur Wiedererkennung kantischer Lehre*; von Aster, *Immanuel Kant*; Wenley, *Kant and his Revolution*; Tocco, *Studi kantiani*; Jünemann, *Kantiana*; Haering, *Der Duisburgsche Nachlass und Kants Kritikismus um 1775*; Wiegand, *Aenesidem-Schulze*; v. Zynda, *Kant-Reinhold-Fichte*; Cunningham, *Thought and Reality in Hegel's System*; MacTaggart, *Commentary on Hegel's Logic*; Lassen, *Beiträge zur Hegelforschung*. A long-desired translation of Hegel's *Phenomenology of Mind* has been published by Baillie. The dictionary of philosophy (*Wörterbuch der Philosophie*) by F. Mauthner, which is appearing serially, will prove useful in all branches of philosophy.

**CONSTRUCTIVE PHILOSOPHY.** In the field of constructive philosophy, philosophy as *Weltanschauung*, or metaphysics, a number of interesting works have appeared. Rehmke, who belongs to the group of so-called "immanent philosophers" led by Schuppe in Germany, presents a system of objective idealism in his *Philosophie als Grundwissenschaft*. According to him, philosophy must say good-bye to phenomenalism, subjectivism, and relativism, and base itself upon the solid ground of reality. Another idealistic book, which, however, would serve as a good corrective to the preceding, is Varisco's *I massimi problemi*, offering a theory similar to the monadism of Leibnitz, but purged, as Professor Taylor, its reviewer in *Mind*, thinks, "of the worst features of Leibnitz's doctrine, the absence of real interaction between the monads, the pre-established harmony, and the rigid determinism." De Cyon, the well-known physiologist, declares in his *Dieu et science* that while the "soul" is intimately bound to the functioning of our organs, the "spirit" or mind is independent of these organs, not subject to mechanical laws, but capable of unlimited activity, which is creative in the true sense of the term. Other books are: a translation of Jerusalem's *Introduction to Philosophy*, a popular elementary text which has passed through five German editions; Lindsay, *The Fundamental Problems of Metaphysics*; Dewing, *Life as Reality*; Petrone, *Il diritto nel mondo della spirito*; Snowden, *The World a Spiritual System*; Herrick, *The Metaphysics of a Naturalist*; Lieder, *Die psychische Energie und ihr Umsatz*; Cohn, *Ueber das Denken*. Among the contributions on the philosophy of nature may be mentioned: a translation of Ostwald's *Natural Philosophy*; Frost, *Naturphilosophie*; Keyserling, *Prolegomena zur Naturphilosophie*; Wundt, *Die Principien der mechanischen Naturlehre*; Lorentz, *The Theory of Electrons*; Hort, *Der Entropiesatz*; Darbon, *Explication mécanique et la nominalisme*; Duclaux, *La chimie de la matière vivante*; Auerbach,

*Ektropismus oder die physikalische Theorie des Lebens*; Stahr, *Der Begriff des Lebens*. Also of interest and value will be: Zeller, *Kleine Schriften*; Wundt, *Kleine Schriften*; B. Russell, *Philosophical Essays*; Stumpf, *Philosophische Reden und Vorträge*; *Correspondance de Renouvier et Secrétan*; Lodge, *Reason and Belief*; Planck, *Die Einheit des physikalischen Weltbildes*; Moon, *The Relation of Medicine to Philosophy*; translation of Houllevigne's *The Evolution of the Sciences*; Schneider, *Die Grundgesetze der Descendenztheorie in ihrer Beziehung zum religiösen Standpunkt*; Seward, *Darwin and Modern Science*; Dewey, *The Influence of Darwin on Philosophy, and other Philosophical Essays*; J. A. Thomson, *Darwinism and Human Life*; Baldwin, *Darwin and the Humanities*; Le Dantec, *La stabilité de la vie. Étude énergétique de l'évolution des espèces*; Hart, *Phases of Evolution and Heredity*; Reid, *The Laws of Heredity*; Herbert, *The First Principles of Heredity*; De Vries, *Intracellular Pangenesis*.

**ETHICS.** The literature on ethics is large and is turning more and more to the study of special problems. The following deal mainly with theoretical problems: Muirhead, *Elements of Ethics*, 2d edition; Leonhardt, *L'évolution. Doctrine de liberté*; Parodi, *Le problème moral et la pensée contemporaines*; Piat, *La morale du bonheur*; Nicholson, *The Concept Standard*; E. Wentscher, *Der Wille*; Ach, *Ueber den Willensakt und das Temperament*; Fite, *The Individual*; McConnell, *The Duty of Altruism*; Sawicki, *Das Problem der Persönlichkeit und des Uebermenschen*; Kriek, *Persönlichkeit und Kultur*; Bovet, *La conscience de devoir dans l'introspection provoquée*; Künzle, *Ethik und Aesthetik*.

**PRACTICE.** The following are concerned with questions of practice: *Everyday Ethics* (a series of lectures delivered at Yale University); Pollock, *Hygiene of the Soul*; Bryce, *Hindrances to Good Citizenship*; *Justice Wanted: Modern Thoughts on Social Problems* (edited by O. O.); Jones, *The Working Faith of a Social Reformer*; Melin, *L'organisation de la vie privée*; Lazzati, *Liberté de conscience et liberté de science*; Rüstow, *Der Lügner*; Dromard, *Les Mensonges de la vie intérieure*; Angell, *The Ethics of Animal Experimentation*. A number of excellent books have appeared on the history of ethics and the history of moral ideals: T. C. Hall, *The History of Ethics within Organized Christianity*; Bussell, *Marcus Aurelius and Later Stoics*; Hicks, *Stoic and Epicurean*; Adams, *Israel's Ideal*; King, *The Ethics of Jesus*; A. Alexander, *The Ethics of St. Paul*; Monod, *Nouvelles esquisses de morale évangélique*; H. C. Taylor, *The Mediaeval Mind*; Schlatter, *Die philosophische Arbeit seit Cartesius in ihrem ethischen und religiösen Ertrag*; Cohen, *Die Begründung von Kants Ethik*; Kelly, *Kant's Ethics and Schopenhauer's Criticism*. F. B. Jevons, *The Idea of God in Early Religions*, and Hobert, *La religion de la Grèce antique*, may also be consulted with profit.

**SOCIAL PHILOSOPHY.** Worthy of mention also in this connection are works on legal, political, social, and sociological problems which have a bearing on ethical questions: Bosanquet, *The Philosophical Theory of the State*; Carreño, *Filosofía del derecho*; Charmont, *La renaissance du droit naturel*; Fried-

rich, *Die Bestrafung des Motivs*; Bruguilles, *Le droit et la sociologie*; Lévy, *La société et l'évolution juridique*; Small, *The Meaning of Social Science*; Ellwood, *Sociology and Modern Social Problems*; Le Bon, *La psychologie politique et la défense sociale*; Fouillée, *La démocratie politique et sociale en France*; Samuelson, *The Human Race*; Haddon, *The Races of Man*; Wetham, *The Family and the Nation*; Gaston, *La femme dans l'histoire*; Kisch, *The Sexual Life of Woman*; Ellis, *Studies in the Psychology of Sex*; Coit, *Woman in Church and State*; Odum, *Social and Mental Traits of the Negro*.

**MORAL INSTRUCTION.** The following deal with moral instruction, a subject to which greater attention is being given every year: DeGarmo, *Ethical Training*; Hart, *Critical Study of Current Theories of Moral Education*; Sully, *Teacher's Handbook of Psychology*; Gaultier, *La vraie éducation*; Namas, *La pédagogie sociale de P. Bergemann*; Roehrich, *Philosophie de l'éducation*; Cellérier, *Esquisse d'une science pédagogique*; Mendousse, *Du dressage à l'éducation*; Lemaitre, *La mentale de l'adolescent*; Talbot, *The Education of Women*; Carreño, *La educación sexual*.

**ÆSTHETICS.** Of works in æsthetics we note: Volkelt, *System der Aesthetik*, vol. III; Croce, *Problemi di estetica*; Babbitt, *A New Iacono*; Paschal, *Esthétique nouvelle*; Prandtl, *Die Einfühlung*; d'Udine, *L'art et le geste*; Lewkowitz, *Hegels Aesthetik im Verhältniss zu Schiller*; Eckwitz, *Nietzsche als Künstler*.

**HISTORY OF PHILOSOPHY.** The history of philosophy shows the usual large number of productions. Besides the books already cited in connection with other fields, we mention: Windelband, *Lehrbuch der Geschichte der Philosophie*, 3d edition; Reyes, *Historia de la filosofía y terminología filosófica*; Cushman, *Beginner's History of Philosophy*, 2 vols.; Eisler, *Geschichte des Monismus*; Hibben, *The Philosophy of the Enlightenment*; Rupp, *Ueber Klassiker und Philosophen der Neuzeit*; Santayana, *Three Philosophical Poets* (Lucretius, Dante, and Goethe); Forsyth, *English Philosophy*; Inoué, *Confucian Philosophy in Japan*; Goebel, *Die vor-sokratische Philosophie*; Werner, *Aristote et l'idéalisme platonicien*; Joyau, *Épicure*; Bréhier, *Chrysippe*; Guthrie, *The Philosophy of Plotinus*; Endres, *Petrus Damiani*; Bauemker, *Beiträge zur Geschichte der mittelalterlichen Philosophie*; Neumark, *Geschichte der jüdischen Philosophie im Mittelalter*; Grundfeld, *Die Lehre vom göttlichen Willen bei den jüdischen Religionsphilosophen*; Lutz, *Die Psychologie Bonaventuras*; Kercher, *Raymundus Lullus*; Serpillanges, *St. Thomas d'Aquin*, two volumes; Péladan, *La philosophie de Léonard de Vinci*; Douglas, *The Psychology and Philosophy of P. Pomponazzi*; Wolff, *F. Bacon und seine Quellen*; Hamelin, *Le système de Descartes*; St. Cyres, *Pascal*; Alberti, *Die Grundlagen des Systems Spinozas*; Dunin-Borkowski, *Der junge Spinoza*; Lempp, *Das Problem der Theodicee bei Leibniz*; Mackinnon, *The Philosophy of John Norris*; Pryer, *Cabanis*; Katzer, *Luther und Kant*; Bolland, *Schelling, Hegel und Fechner in der neuen Theosophie*; Heller, *Die Weltanschauung A. von Humboldts*; Gwinner, *Schopenhauers Leben*, 3d edition; Covotti, *La vita e il pensiero di A.*

*Schopenhauer*; Keyserling, *Schopenhauer als Vorbilder*; Mühlethaler, *Die Mystik bei Schopenhauer*; Ziegler, *Das Weltbild Hartmanns*; *The Letters of John Stuart Mill*, edited by Elliot; Barzellotti, *Monte Amiata e il suo profeta* (Lazzaretti); Remacle, *La philosophie de S. S. Laurie*. English translations of the works of Aristotle and Nietzsche have been appearing during the year.

**PHOSPHATES.** See FERTILIZERS.

**PHOSPHORUS.** See ATOMIC WEIGHTS.

**PHOSPHORUS POISONING.** See OCCUPATIONAL DISEASES.

**PHOTOTHERAPY.** As familiarity with the Roentgen ray increases and technique improves, new uses are constantly being found for this agent, especially in the field of medical and surgical diagnosis. According to Finckh, 150 patients with suspicious stomach symptoms were examined at Tübingen University, and the presumptive diagnosis of cancer was confirmed by means of the X-ray before any tumor could be perceived by manual examination through the abdominal wall. Adler was able to photograph ulcers of the stomach and duodenum by means of the X-ray, after first administering to the patient a certain amount of subcarbonate of bismuth. The bismuth is deposited on the ulcerated surfaces, and a dim shadow of the outline of the ulcer shows in the photographic plates. Tumors of bones, pus cavities, aneurisms and the outlines of the abdominal organs can now be made out from negatives taken with the Roentgen ray, by those skilled in the reading of these plates. This agent was extensively used to designate purulent processes in the accessory sinuses of the nose and in the bony structures about the ear. As a means of treatment, the rays are being restricted to certain chronic skin diseases, such as lupus and eczema, and in superficial cancer.

**RADIUM.** It is now believed that radium emanations are not essentially different from those of the X-ray in their external therapeutics. Independently of each other, Wolff and Friedländer investigated the effect of radium emanations on tuberculosis, and reached the conclusion that no bactericidal action could be shown. In Wolff's experiments, cultures of the bacillus, subjected to the action of radium, still proved virulent, and killed animals inoculated with them. He also applied radium to tuberculous glands in animals, with complete failure to reduce them, even under irradiations intense enough to produce severe inflammation of the skin.

The supply of this rare metal, hitherto derived almost exclusively from the mines in Bohemia, was increased during 1910 by the discovery of two new sources of production. The most important was that in Cornwall, England, where a pitchblende, comparative rich in this element, has already yielded 550 milligrams of pure radium. The importance of this new source of supply will be understood when it is remembered that, according to Sir William Ramsay, there are only 5500 milligrams of radium in the world, apart from the Cornwall product. A new process was also devised by which the element could be extracted from the pitchblende within two months. The second new source of supply was found in Portugal, near Guarda, in the bed of a stream.

The extent of this latter deposit is as yet unknown. The price of radium has been considerably reduced. The sale of the element in the form of the barium chloride salt was authorized by the Austrian government, which has taken the trade into its own hands. The price is now 400 kronen or \$80 per milligram (one-sixtieth of a grain). The substance is put up in brass capsules, partly lined with lead, upon which the salt is deposited. An opening in the capsule, covered by a mica plate, permits the use of the radium for therapeutic purposes, without opening the capsule.

A bank for the storage and rental of radium to physicians and scientists was established in London. Portions of 50 milligrams of radium, having a value of \$4000, could be hired for periods of time at the rate of \$200 for one day's use, and one-half per cent. of the value for each subsequent day.

**PHYSICAL EDUCATION.** See EDUCATION IN THE UNITED STATES; and UNIVERSITIES AND COLLEGES.

**PHYSICS.** As has generally been the case during recent years, the most striking advances in physics have been made in those sections which deal with the ultimate constitution of matter, such as radioactivity and the electrical phenomena in gases, and light. A great deal of the work in any experimental science, and particularly in its older and more developed branches, is necessarily of a statistical character, and not so interesting and novel as the work on new theories and phenomena, although of great importance to the science as a whole.

**RELATIVITY THEORY.** No entirely new acquisition of great importance has been made in the domain of theoretical physics during the past year, but the applications of the relativity theory have been greatly extended. It is proper to note that the fundamental and even revolutionary significance of this theory is becoming more widely understood and accepted. The theory was evolved from the efforts of physicists, particularly Lorentz and Einstein, to explain satisfactorily the failure of the extremely careful experiments which had been made in the attempt to discover some influence upon optical phenomena caused by the motion of the earth through the ether. Assuming that there is some fundamental principle back of these failures, the relativity theory postulates that motion of matter has meaning only when it is motion as referred to some other portion of matter, and that to speak of absolute motion or motion through a universal ether is meaningless. This amounts to giving up the ether, for a mechanical conception of which many of the most brilliant scientists have long labored, but in vain.

**ATOMIC THEORY OF RADIATION.** No direct and conclusive experimental test of the atomic theory of radiation has yet been brought to a successful completion. This "light-bundle" hypothesis, which explains some phenomena that appear to conflict with the older theory of radiation, is one of the most important advances of recent years. It has long been considered that the emission of radiation from any body is due to some sort of electrical vibration in some of its very small constituent parts. According to the older theory each such vibration causes radiant energy to travel out in all directions. According to the "light-

bundle" hypothesis the energy from a single vibration is concentrated in certain units, each contained in a definite volume, and proceeding from the source in a straight line.

An ingenious experimental test of this has been attempted by Dr. N. Campbell. According to the "atomic" theory of radiation, the beams of radiation proceeding in two different directions from a source would be made up of "bundles of energy" from different vibrators. Suppose the mean intensities of these beams were equal, there would yet be momentary differences in their intensities, and it can be shown that if the emission were in accordance with the "atomic theory of radiation" the mean fluctuation of the difference would not be zero, while on the older theory it should. Campbell tried to test this, measuring the intensities of the light beams by the photo-electric currents which flowed from a sodium-potassium alloy when the light fell on its surface in a high vacuum. The theory developed for the experiment was partly confirmed, and Campbell found that the number of electrons liberated by one of the hypothetical "light-bundles" would be about 3, which agrees with the results deduced from other theoretical grounds. But the main object of the experiment was not fully attained because of the impossibility of finding a suitable light source, so that direct evidence that light is sent out in discrete units of energy remains still to be sought for.

In this connection the results obtained during the past year by O. Stuhlmann are of interest. He passed a beam of light through a film of platinum so thin as to be translucent, and compared the photo-electric effect, that is, the number of electrons thrown out of the surface of the metal by the radiation, at the side of the film on which the light fell, with that at the other side, from which the light emerged. He found the photo-electric effect 17 per cent. greater on the emergent side, that is, when the electrons are torn out of the metal more of them are thrown off in the direction in which the light is traveling than in the opposite direction. This lack of symmetry is in accord with the light-bundle theory, but the difference is larger than can readily be explained on the older theory of light.

**RADIOACTIVITY.** Probably the most important event of the year in its relation to the science of radioactivity was the meeting of the Second International Congress of Radiology and Electricity at Brussels in September, attended by about five hundred physicists and medical men. The meeting of so many men interested in the new and growing science could not fail to give a strong stimulus to work in this field. The recommendations adopted by the Congress lead toward greater uniformity and definiteness in the science, particularly in the important matters of physical standards and nomenclature.

It was pointed out that a number of the quantities measured in investigations in radioactivity (for example; the volume of the radioactive emanations, the heating effects of radioactive substances, the rate of production of helium, and the rate of emission of  $\gamma$  and  $\beta$  particles) can now be determined with a fair degree of accuracy. But the value of any one of these measurements depends upon the accuracy of the radium standard with which the radioactive substance under investigation is

compared. A comparison of standards in use at different laboratories has revealed errors in their supposed content of radium as great as 20 per cent. in some cases. The committee on standards recommended the adoption of a definite standard, and Mme. Curie has undertaken to prepare a standard containing 20 milligrams of radium in a suitable sealed tube. Such a standard can be used for comparison without opening the  $\gamma$  tube, by measuring the intensity of the rays from it. It is proposed that all national laboratories, such as the Bureau of Standards at Washington, obtain sub-standards compared with this international standard.

Among the interesting suggestions regarding the matter of nomenclature was the proposal to use the name "curie" to designate the "amount of radium emanation in equilibrium with one gram of radium."

**METALLIC RADIUM.** The year 1910 witnessed another interesting event in the history of radium. It has hitherto been known only in the form of some of its salts, but this year Mme. Curie and A. Debierne have obtained metallic radium. They electrolysed some chloride of radium, using a mercury cathode, and obtained an amalgam of radium. This amalgam was then freed from mercury by careful heating in an atmosphere of hydrogen in a quartz tube. The residue, metallic radium, had a shining white color, and when heated to volatilization attacked the quartz tube. It decomposed water, and when exposed to air blackened rapidly, forming probably a nitride of radium. For further details concerning radium, see the articles **CHEMISTRY** and **PHOTOTHERAPY**.

**RADIOACTIVE RECOIL.** The recently discovered phenomenon of radioactive recoil has received due attention during the past year. This phenomenon consists of the expulsion of atoms of the radioactive disintegration product from a layer of the parent material, which is due to the fact that when an atom of the latter disintegrates with the expulsion of a  $\alpha$  or  $\beta$  particles, equal and opposite momenta, in accordance with the principles of mechanics, are given to the atom of the product and to the particles. Hence if a particle is emitted toward the interior of the active layer the "recoil-atom" is given a velocity, small because of its greater mass, away from the surface of the layer.

Working with the "recoil atom" of radium B, obtained from a layer of radium A, Russ and Makower, and Makower and Evans have measured the deflections which it suffers in passing through electric and magnetic fields. The directions of these deflections indicate that the "recoil atoms" of radium B are positively charged. Their velocity as determined from the deflections and the known field strengths agrees with that computed from the relative masses of the atom of radium  $\beta$  and of the  $\alpha$  particle (from which it recoils) and the velocity of the latter.

Wertenstein has found that the distance the "recoil atom" of radium B moves in a gas before being stopped (its "range") is inversely proportional to the pressure of the gas, and would at atmospheric pressure be about 0.12 millimetre. By depositing very thin layers of silver over a layer of the radioactive material it was found that most of the "recoil atoms"

passed through a layer of 10 millionths of a millimetre in thickness, but not through one twice as thick. A layer of silver 16 millionths of a millimetre in thickness would be equivalent in weight to a layer of 0.12 millimetre of air at atmospheric pressure.

**RADIUM HALOS.** When a particle of radium remains enclosed in glass or in some forms of mica for a considerable time it causes a discoloration of the surrounding material. Examination of this "pleochroic halo" has shown that the color effect extends out from the radium particle for a distance just equal to that which the  $\alpha$  particle can travel in the material before losing its ionizing power. Corresponding to the emission of  $\alpha$  particles with different velocities and ranges of ionization by different radioactive products, there are found halos of different sizes, and often multiple halos, the radius of each darkened portion corresponding to the range of the  $\alpha$  particle which produced it. The amount of radium associated with, and producing, one of these halos is estimated at about  $10^{-16}$  grams. Forming thus a very sensitive indication of the action of  $\alpha$  particles at any time, the phenomenon may prove of considerable value in the investigations of radio-mineralogy.

**VELOCITY AND IONIZATION.** Dr. H. Geiger has made careful measurements of the change in velocity and in ionization produced by an  $\alpha$  particle at points along its path. He found the velocity to be proportional to the cube root of the remaining range of ionization instead of the square root as formerly believed. The results agree well with the earlier ones of Rutherford except near the end of the range. The ionization produced at any point by an  $\alpha$  particle is proportional to the rate at which it loses energy, which, in turn, inversely varies as the velocity, so that the ionization is inversely proportional to the velocity, or to the cube root of the remaining range. This explains the increase in ionization observed near the end of the range.

Careful measurements sustain the view (previously adopted on rather insufficient evidence) that all the  $\gamma$  particles from a single radioactive product have the same initial velocity, although when passing through air they acquire small differences in velocity and direction because of collision with the molecules.

**DEVIATION OF PARTICLES.** The scattering of  $\alpha$  particles by matter has also been investigated by Geiger. Placing various thicknesses of metal foil in the path of a small parallel beam of  $\alpha$  particles he observed the scintillation pattern produced by these particles on a zinc sulphide screen beyond the foil. As thicker foils were used the mean distance of the scintillations from the axis of the beam increased. By careful observation of the scintillation pattern he was able to determine the relation between the scattering of the beam and the nature and thickness of the material traversed. These results he was able to state in terms of the most probable angular deviation experienced by an  $\alpha$  particle in passing through an atom. Thus a single atom of gold produces an angular deviation of about one two-hundredth of a degree. The deviation is proportional to the atomic weight of the metal.

**POSITIVE ELECTRICITY.** The nature of positive electricity is still an open question. We are well enough assured that negative elec-

tricity exists in definite units or atoms called electrons, but whether there are corresponding positive electrons or not is not known. It has often been the custom to regard positive electricity as distributed uniformly throughout a spherical volume of very large dimension as compared with the negative electron.

Professor Sir J. J. Thomson has approached the question of the positive electricity in the atom in a very ingenious manner. He showed that the mean probable deviation from its path experienced by a  $\beta$  particle in passing through an atom of matter would depend on the distribution of the electric charges in the atom. In particular he compared the deviation calculated on the hypothesis that the positive electricity in the atom is localized in definite units with that calculated on the hypothesis of a uniform volume distribution of positive electricity throughout the atom. The theory was put to experimental test by J. A. Crowther, whose results favor the hypothesis of uniform distribution.

Thomson's theory with the experimental results obtained by Crowther also affords an opportunity to compute the number of negative electrons in the atom. The number was found to be three times the atomic weight.

**ABSORPTION OF RAYS.** Investigating the absorption of homogeneous  $\beta$  rays, Crowther found that, after the initial scattering, the particles were absorbed according to an exponential law, that is the number of particles stopped in any thin layer of the material was proportional to the number incident upon it. The deviations from the exponential law, observed with thin layers of absorbing material, were shown to be due to the scattering.

It has been shown that there is a small but appreciable decrease in velocity of the  $\beta$  particles in passing thin matter. Crowther found, for example, that a certain beam of  $\beta$  rays decreased in velocity from  $2.735 \times 10^{10}$  centimetres per second to  $2.690 \times 10^{10}$  centimetres per second in passing through 0.47 millimetres of aluminum. Allowing for the decrease in the mass of the  $\beta$  particles as their velocity decreases, this would amount to a loss of only 10 per cent. of their energy, although 71 per cent. of the rays were "absorbed" in passing through this sheet of aluminum. This shows that the main cause of the absorption of the  $\beta$  rays does not, as in the case of the  $\alpha$  rays, lie in the decrease in their velocity.

Although the matter has not been very decisively settled, it seems most probable that the  $\beta$  rays emitted by a single radioactive product have all the same velocity, and that the results in opposition to this view obtained by some observers are probably due to the scattering of the rays by air before they reached the apparatus used to determine their velocity.

**ELECTRON.** The elementary electric charge ( $e$ ) carried by an electron, which is supposed to be the ultimate limit of divisibility of electrical quantity, is one of the most important physical constants. A knowledge of this constant makes possible the computation of the actual masses of atoms and molecules, the number of molecules in unit volume of any gas, or in a given mass of any substance, and other important physical quantities. Determinations of its value made in recent years have shown that the earlier values of about  $3 \times 10^{-10}$



**SIR J. J. THOMSON**

340

electrostatic units is probably too low, and that it is more nearly  $4.6 \times 10^{-10}$ .

Early in the year 1910 Professor R. A. Millikan published the results of a series of measurements of the elementary charge. In a chamber containing air saturated with water or alcohol vapor, and ionized by the radiation from a large quantity of radium, a cloud of fine drops was produced by a sudden expansion of the saturated air. The water (or alcohol) drops formed about the ions in the air and so behaved like fairly large charged spheres. It was usually possible to fix the attention on an individual drop and determine which electric field would just prevent it from falling under the action of gravity. From this field strength, and the velocity with which the drop fell when the field was removed, using the results of careful determinations of the viscosity of moist air, they were able to compute the electric charge carried by the drop. The charges carried by the many drops observed were all found to be multiples of the same number, so that it was at once evident how many elementary charges each drop carried. The result of this work was given as  $4.65 \times 10^{-10}$  electrostatic units of quantity, which agreed very well with the best results previously obtained.

In later work Professor Millikan has used drops of oil, mercury and glycerine, and has been able to keep a single drop in the field of view for an indefinite length of time. Changes in the motion of the drop indicating that it had taken up additional charges were observed, and from the measurements made each charge could be determined. It was found that the charges thus taken from the ions in the air were usually of the magnitude of a single elementary charge, although sometimes multiple charges were caught. Furthermore, every charge detected on any of the drops was within one-half of one per cent. of some multiple of the same quantity,  $4.917 \times 10^{-10}$  electrostatic units. This then is the value of the elementary charge as found from Millikan's later experiments.

From the fact that an ion present in the air could join one of the drops bearing a charge of the same sign, which would therefore exercise an electrical repulsion upon it, Millikan computed that the ion must have been in motion with a kinetic energy of about  $5 \times 10^{-14}$  ergs, which agrees with the value computed from the kinetic theory of gases.

**NATURE OF THE THERMIONS.** The charges carried by the ions emitted by hot bodies (thermions) have been further investigated by Professor O. W. Richardson and Mr. Hurlbirt. In earlier work it had been found that the negative ions had the same characteristics as the electrons, as was expected. It was also found that the positive ions from platinum, carbon, and iron had a value of  $e/m$  (the ratio of the electrical charge carried by the ion to its mass) corresponding to an atomic weight of about 26 if they carried the elementary charge. Seven other metals and three alloys recently investigated also produce positive ions having very nearly the same value of  $e/m$ . This makes it seem probable that it is sodium atoms, present in the metal as an impurity, which carry the positive charge. However, as severe chemical treatment of the metals did not cause any change in the phenomenon, it is certain that any impurity which accounts for the carriers of the positive charge must be very

deep-seated in the metal. Investigations on the positive ions emitted by the alkali sulphates furnish additional evidence that the positive ions are due to the presence of alkaline impurities in the metals.

**THE MAGNETIC RAYS.** It was observed many years ago that when a discharge tube was placed longitudinally in a magnetic field the cathode rays were bent in a helix, but when the magnetic field was increased beyond a certain value this helix changed to a continuous band of light, and the potential across the tube changed abruptly. Attempts which were made to detect any electric charge carried by this radiation failed. The radiation was found to be deflected by an electric field in a direction perpendicular to the lines of electric force, although radiations of charged particles are ordinarily deflected along the lines of force. These considerations led to the belief that this was some new form of radiation, and various explanations of it were offered.

H. Thirkill has shown that this phenomenon may be explained as the effect of cathode rays, coiled up into a very close helix by the action of the magnetic field. The sudden appearance of the band of light when the magnetic field is increased is due to the fact that the cathode rays are concentrated by the field, increasing the current density in the strongest part of the field, and, as Thomson has shown, such an increase in current density is often accompanied by an abrupt increase in the luminosity. As the luminosity is accompanied by increase in ionization the difficulty found in detecting the negative charge accompanying the rays is explained by the increased leakage of charge from the metal cylinder. The negative charge carried by the rays Thirkill has detected (using a very sensitive galvanometer, and taking precautions against this leaking away of the charge). The unusual direction of deflection in the electric field can also be explained on this theory. It is thus concluded that the magnetic rays are slowly moving negative particles whose paths are coiled up into helices by the strong magnetic field along which they travel.

**LIGHT PRESSURE.** The pressure exerted by light on solid reflecting and absorbing surfaces was proven experimentally several years ago by Lebedew, Nichols and Hull, and others. During the past year Lebedew has experimentally demonstrated the pressure exerted by light on a partially absorbing gas. This pressure is proportional to the coefficient of absorption of the gas for the light used, and to the amount of radiant energy falling on the gas per second. Several different gases were used, and in all cases the pressures measured agreed with those theoretically computed within less than 30 per cent., which, considering the difficulties of the experimental work, is as good an agreement as could be expected. It may be noted that the highest pressure observed was about 4 microdynes (approximately  $4 \times 10^{-9}$  grams) per square centimetre.

Theoretically, when a beam of light is emitted there should be a backward pressure exerted upon the source (the "recoil from light," from analogy with the recoil of a gun which "emits" a projectile). The measurement of this recoil in the case of a body in which heat is developed by some internal change (for example, by electrical heating or by combustion) is beset with many experi-

mental difficulties and uncertainties. But when radiation falls on an absorbing body, that body is heated by it and itself emits radiation in the form of very long heat waves, sending out, in the steady (final) state, as much energy as it receives. The back pressure exerted by this heat radiation will combine with the direct pressure due to the incident radiation, and the resultant can be measured. The pressures on discs with reflecting or absorbing surfaces and light incident on one side or the other can be theoretically calculated. If  $P$  is the pressure exerted by the incident light on an absorbing disc, it can be shown that for a disc which is perfectly absorbing on both sides the resultant pressure will be  $P$ ; if black on receiving side but polished on the other,  $5/3 P$ ; if polished on receiving side, or on both sides,  $2 P$ . Poynting and Barlow have measured the pressures on various discs, and found them in good agreement with the values calculated from the amount of incident energy and the character of the discs investigated. Thus the "backward pressure" of radiation on the source may be considered as experimentally proven.

**THE "ECHELETTE" GRATING.** The diffraction grating, consisting of a great number of very narrow grooves ruled very close together on a reflecting surface, has long been of the greatest service in forming spectra for investigation. It possesses the great advantage of giving a regular and long spectrum, accompanied by the disadvantage of distributing the light through several spectra, thereby giving a less intensity in any one spectrum. The manufacture of these gratings was brought to its greatest perfection by the late Professor Rowland at the Johns Hopkins University. Professor Wood of Johns Hopkins has brought out a grating designed particularly for forming the spectrum of the infra-red radiations, which are of so much importance in the optical researches of to-day.

The theory of the grating shows that with grooves of the proper shape, a large part of the energy falling upon the grating can be concentrated into a single spectrum. It is mechanically impracticable to give a very definitely known shape to the groove in the ordinary grating because of the exceeding fineness of the rulings, but for work in the infra-red, where the wave-lengths are many times longer than in the visible spectrum, the grooves may be made correspondingly larger. On account of this Professor Wood has been able to rule grooves of definitely known shape, which are yet fine enough for infra-red work. Ruling with carborundum crystals on gold-plated copper plates which had been made as nearly plane as possible, he has secured some very good gratings, in which the metal was not cut at all, but simply compressed to form the groove.

The action of these gratings has been investigated by Professor A. Trowbridge and Professor Wood, using the vacuum spectrometer recently devised by the former. With infra-red radiation they throw practically all the energy into one or two spectra. They give considerably higher "resolving power," that is, greater angular separation of radiations having a given difference in wave-length, than any other apparatus that has been used in the remote infra-red portion of the spectrum. The results obtained with the gratings agree with the theory and show that by the use of these "echelette" gratings the theoretical relation between the dis-

tribution of the energy and the groove-form can be experimentally confirmed. Further experiments with the use of various groove-forms are in progress.

**LONG HEAT WAVES.** The fact that by repeated reflection from a selectively reflecting surface nearly monochromatic radiation can be obtained has for several years been used to locate certain lines in the infra-red. During the past year Rubens and Hollnagel have obtained in this way the "residual rays" (after multiple reflection) from rock salt, sylvine, potassium bromide, and potassium iodide. Their measurements of the wave-length were made with an interferometer of the Fabry-Perot type, with quartz plates. Wave-lengths longer than any before obtained in the infra-red were measured, the longest being those of potassium iodide, whose "residual rays" have a wave-length of  $96.7\mu$ , or nearly one-tenth of a millimetre. This brings the known region of heat radiation a little nearer to that of short electrical waves in which radiation of about 2 millimetres wave-length has been obtained. On the other hand, the lowest wave-lengths yet obtained in the ultra-violet are about  $0.12\mu$ , about one eight-hundredth as long as these new waves in the infra-red.

**THE LIGHT OF THE FIREFLY.** Coblenz and Ives have made an interesting study of the spectral distribution of energy in the light emitted by the common firefly. As the radiation is, of course, discontinuous and of very low intensity, it was found impossible to apply any of the more ordinary methods, so the spectrum was photographed and the intensities of different portions compared with those in a photograph of the spectrum of an electric lamp, whose spectral distribution was determined. The firefly radiation has a luminous efficiency of 96.5 per cent., while that of the carbon lamp is 0.4 per cent., and that of the most efficient artificial light 4 per cent. It is probable that the firefly gives out light as a result of some physiological-chemical process. The high efficiency stated refers only to the comparison of the visible radiation with the total, and nothing is known about the efficiency of the process which causes the emission of the light.

**PHYSIOGRAPHY.** See GEOLOGY.

**PHYSIOLOGY.** Of perennial interest is the question of the physiological effect of alcohol on the animal body. Mendel, working on men and dogs, to the former of which he gave small doses, to the latter doses sufficient to produce intoxication, found that alcohol increased the output of uric acid, though he was unable to give a satisfactory explanation of this effect. Even with the dogs there was no indication of any pronounced alteration indicating disturbed protein metabolism. This seemed to indicate some regulating mechanism of the body. Mackenzie and Hill found that alcohol increased the ability to work, and to hold the breath, and Hamill showed that an isolated heart will utilize limited amounts of alcohol given to it in its nutrient fluids. Burrage stated that fatigue is not due to an effect on the central nervous system, but is rather due to the action, probably of potassium salts, upon the nerve endings. It seemed certain that the nerve endings were the parts affected, and potassium salts were shown to be capable of producing this effect. Lactic acid in the blood would give the same results. Jacobson reported results indicating that there are no specific "trophic" nerve fibres governing the

nutrition of the body. From a study of goitre in cats and dogs, Carlson and Woelfl decided that while in normal conditions the thyroid and parathyroid glands have distinct functions, each may assume the function of the other. There is as yet no definite test for the secretion of either gland, but it is probable that this secretion passes directly into the blood and not first into lymph vessels. See BIOLOGY and BOTANY.

**PICTON, JAMES ALLANSON.** An English non-conformist clergyman, politician and writer, died February, 1910. He was born in 1832 and was educated at Owens College, Manchester, and London University. He served as independent minister in various places in England from 1856 to 1876. From 1869 to 1878 he was a member of the school board for London. He was a Member of Parliament from Leicester from 1884 to 1894. Among his published writings are: *New Theories and the Old Faith*; *The Mystery of Matter*; *England's Resurrection*; *Oliver Cromwell, the Man and his Mission*; *The Religion of Jesus*; *The Religion of the Universe*; *Spinoza: a Handbook to the Ethics*; and *Man and the Bible*.

**PIERS.** See DOCKS AND HARBORS.

**PIGS.** See STOCK RAISING.

**PINCHOT, GIFFORD.** See CONSERVATION, and UNITED STATES, Administration.

**PINERO, Sir ARTHUR W.** See DRAMA.

**PIPE OF DESIRE.** See MUSIC.

**PISA, LEANING TOWER OF.** See ARCHITECTURE.

**PISTOL WOUNDS.** See FOURTH OF JULY ACCIDENTS.

**PITMAN, BENN.** An inventor and author of works on phonography, died December 28, 1910. He was born at Trowbridge, England, in 1822 and was educated in the academy of his brother, Sir Isaac Pitman, the original inventor of phonography. He promulgated the art in Great Britain by lectures and teaching for ten years. In 1853 he settled in the United States and founded the Phonographic Institute in Cincinnati, of which he remained president until the time of his death. He was the inventor of the electro process of relief engraving in 1856. During the Civil War he was military recorder of State trials. From 1873 to 1892 he lectured on art, and was a teacher of artistic wood-carving, etc., in the Cincinnati Art Academy. He was the author of the *Reporter's Companion* (1854); *Manual of Phonography* (1854); *Phonographic Teacher* (1857); *History of Shorthand* (1858); *A Plea for American Decorative Art* (1895); *Phonographic Dictionary* (with Jerome B. Howard, 1899); *Life of Sir Isaac Pitman* (1902); and *A Plea for Alphabetic Reform* (1905).

**PITTSBURG.** See BRIDGES and PENNSYLVANIA.

**PITTSBURG SYMPHONY ORCHESTRA.** See MUSIC.

**PLAGUE.** The plague in India increased somewhat during 1910, 27,000 deaths occurring during one week in March. (See VITAL STATISTICS.) Prophylactic injections are still regarded with distrust by the native population, only five or six thousand submitting to it during the year. Amasuyama states that according to his observations the most effective treatment was the incision or removal of the glandular swellings (buboes), combined with serum injections. Under ordinary symptomatic treatment, only 4 out of 163 patients recovered; under incision

or enucleation of the bubo, 47 out of 82 cases recovered, while under the combined treatment over 78 per cent. recovered. Japanese anti-plague serum was used in large doses.

The discovery of plague-infected rats in Suffolk, England, occasioned considerable anxiety. Hares and rabbits were also found dead from the disease, and two ferrets died from plague after eating a dead rabbit. Plague-infected rats have also been found in the London docks. A vigorous campaign in the affected districts was undertaken against the rats, and in London especially elaborate precautions were instituted against the introduction of plague. Thousands of rats were destroyed in vessels and dock warehouses, and it is believed that any danger of human infection is past.

**PLANCHEITE.** See MINERALOGY.

**PLANETS.** See ASTRONOMY.

**PLANT BREEDING.** See BOTANY.

**PLANT FOOD.** See SOILS.

**PLANT PATHOLOGY.** See BOTANY.

**PLANT PHYSIOLOGY.** See BOTANY.

**PLATINUM.** See ATOMIC WEIGHTS.

**PLATT, O. H.** See LITERATURE, ENGLISH AND AMERICAN, Biography.

**PLATT, THOMAS COLLIER.** An American public official, former United States Senator from New York, died March 6, 1910. He was born in Owego, Tioga county, N. Y., in 1833. His father was a lawyer and practiced in Owego. He attended the public school and academy in Owego and in 1849 entered Yale College, but was unable to complete his course on account of ill health. He returned to Owego and began practice as a country druggist, forming a co-partnership under the name of Platt and Hull, but sold his interest in this business in 1872. He had in the meantime become identified with other business interests, being director in several mercantile companies in New York, Michigan, and other parts of the country. He was also for many years president of the Tioga National Bank at Owego. Following his retirement from the drug firm he removed to New York City, where, with others, he started a newspaper called the *Republic*, devoted to the interests of General Grant. The *Republic* had a brief existence. In 1878 Mr. Platt became secretary and general manager of the United States Express Company and in the following year was chosen president, and in this position he remained during the rest of his life. Although his business career was important, the main interests of his life were political. As early as 1858 he had been elected county clerk of Tioga, and there learned his first lesson in practical politics. He had considerable musical ability and organized a glee club for the Fremont campaign, which was accustomed to sing between the speeches at rallies of his party. Through this means he became known to all in the county who took an interest in public affairs. He also wrote campaign songs and verses, Mr. Platt was unable to serve in the Civil War on account of ill health, but he was an advocate of President Lincoln. He was also a strong admirer of William H. Seward, President Lincoln's chief rival for the nomination of the Chicago convention of 1860. The name of Mr. Seward was presented by Mr. Evarts on behalf of the New York delegation, and it was the appointment of Mr. Evarts to be Secretary of State by President Hayes in 1877 which began the famous struggle of Senators Conkling and Platt with

Hayes (see below). Mr. Platt's interest in politics continued and by 1870 he had become a considerable political power in New York City. In that year he was nominated without his knowledge or consent for representative to Congress. He declined the nomination on the ground that he had pledged his support to another and that he could not break those pledges. He was nominated again in 1872 and was elected. In 1874 he was renominated for Congress and was again elected. He declined another renomination in 1876. One of his last acts in the House was to make a speech which favored the bill for the Electoral Commission which seated President Hayes. Mr. Platt had by this time become one of the leaders in the politics of New York, and when Hayes took his seat as President, trouble at once arose between Senator Conkling of New York and the President. In this struggle, which is a part of the political history of the times, Mr. Platt steadily supported Senator Conkling. The latter had insisted to the President that Platt should be made Postmaster-General. President Hayes acted on the advice of James G. Blaine and James A. Garfield and refused to appoint Mr. Platt to this office, at the same time making William M. Evarts, who was the avowed enemy of Conkling, Secretary of State. Mr. Platt was made temporary and permanent chairman of the Republican State Convention in 1877. On taking the chair he made a bitter speech against President Hayes, which increased the feeling between the two parties. The Conkling-Platt faction continued in control of the State Republican machine and in 1879 Conkling was re-elected to the Senate. Immediately after President Garfield's election a movement was begun to make Mr. Platt United States Senator, and after one of the bitterest fights ever carried on in the State he was on January 18, 1881, elected to the Senate. Trouble at once began between the two Senators from New York and President Garfield. The latter declared that he did not intend to permit Conkling and Platt to dictate regarding Federal appointments from New York State, and he made several appointments which they could not approve. Later the President withdrew all nominations for Federal offices which were friendly to Platt and Conkling, and on May 16, 1881, they sent in their resignations to the New York State legislature, with the request that they be accepted immediately. A fight was at once begun to re-elect them, but they were both beaten. This so disrupted the Republican party in the State that another Republican governor was not elected until 1894. It was supposed that President Arthur would be more friendly with the former Senators as his relations with them had always been cordial. He refused, however, to recognize them as the Republican leaders of the State. Conkling retired from politics, but Platt continued the struggle. As a result of this dissension in the Republican party in the State, Cleveland was elected governor by 192,000 plurality in 1882. Platt then started out with the avowed intention of defeating Arthur's renomination. This resulted in the nomination of James G. Blaine. At the National Convention of 1888, Mr. Platt was one of the leaders of the delegates from New York State. After the nomination and election of President Harrison, he was a candidate for Secretary of the Treasury, but Harrison refused to appoint him to this office. By 1891 he had

so harmonized the Republican differences in the State as to be the acknowledged leader, and for years he remained the dominant power in Republican politics in New York. In 1897 he was returned to the United States Senate. His relations with President McKinley were, on the whole, friendly, and many of the appointments in New York State during these years were brought about by his influence. At the Republican National Convention at Philadelphia in 1900 he proposed Governor Roosevelt for the vice-presidency, and the latter was nominated and accepted the nomination. It was supposed that his intention in this matter was to eliminate Mr. Roosevelt from State politics. Mr. Platt remained in control of the State legislature until 1902, when, although his mental faculties were good, his bodily forces began to wane. Governor Odell in that year attempted to wrest the leadership from him and finally succeeded by having himself made chairman of the Republican State Committee. Platt continued to influence the legislature, however, and in 1903 was re-elected to the Senate. With his retirement from the Senate on March 4, 1909, Mr. Platt completed something over half a century of political activity. For nearly half this time he was the "boss" of the Republican party in New York State. Although Senator Platt was perhaps the most complete exponent of a type of politician of which much may be said that is not good, his personal integrity was never questioned. His last years of service in the Senate were not productive of important work. This was largely due to the fact that on account of physical disability he was incapable of taking a very active part in the proceedings of that body.

**PLAYGROUNDS.** See EDUCATION IN THE UNITED STATES.

**PNEUMATIC CAISSON FOUNDATIONS.**

See FOUNDATIONS.

**PODMORE, F.** See LITERATURE, ENGLISH AND AMERICAN, *Philosophy and Religion*.

**PODOLITE.** See MINERALOGY.

**POE, E. A.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*, and NEW YORK UNIVERSITY.

**POETRY.** See LITERATURE, ENGLISH AND AMERICAN; FRENCH LITERATURE; GERMAN LITERATURE.

**POINDEXTER, MILES.** See WASHINGTON.

**POLAR RESEARCH.** ANTARCTIC. In February, 1910, Dr. Jean Charcot arrived in Magellan Strait, on his exploring vessel *Pourquoi Pas?* after successfully carrying out the Antarctic scientific programme arranged for his expedition by the French Academy of Sciences. His year's work supplemented the discoveries he made on his first expedition in the region of West Antarctica. He found new lands to the west and south of Alexander I. Land, relocated Peter I. Land and sailed between the 69th and 71st parallels to 126° W. long., far towards Edward VII. Land, discovered by Capt. Scott. Charcot has surveyed the coast of West Antarctica practically from Liège Island in 64° S. lat. to Charcot Land in 70° S. lat. He has found safe harbors at Wandel Island and at Petermann Island which may be used as bases for further explorations in this part of the Antarctic. His soundings, combined with those of de Gerlache of the Belgian expedition, point to the strong probability that King Edward VII. Land is a part of the coast of West Antarctica. It is

very likely that Captain Scott will be able to settle this question on his present expedition.

Captain R. Amundsen left Europe on the *Fram* in the summer, to round Cape Horn, go north to Bering Sea and enter the Arctic Ocean for his ice-drift of several years across the Polar area. It was announced, however, from Madeira, where he touched on his way south, that he had decided to take part in Antarctic exploration during the summer season in that region and, at the end of 1911, he would start north for San Francisco to carry out his Arctic plans. He did not state the nature of his plans for Antarctic work but as he has no dogs or other draft animals for land expeditions it is concluded that he probably intended to engage in marine explorations, perhaps in the waters adjoining West Antarctica which Dr. Charcot has been the last to visit.

The third British South Polar Expedition, under command of Capt. Robert F. Scott, sailed from Port Chalmers, New Zealand, on his vessel *Terra Nova*, on Nov. 20, 1910, for the Antarctic. He expected to establish winter quarters near his old station at the foot of Mt. Erebus and also at King Edward VII. Land, where he expects to land a small party. Before Capt. Scott left England an agreement was made between himself, Lieut. Wilhelm Filchner, in command of the second German South Polar Expedition, which is to start in the summer of 1911, and Dr. W. S. Bruce, who will head the second Scottish Expedition, to coöperate in their work and each to explore a certain territory. Scott will endeavor to penetrate from the Ross Sea to the South Pole and across the Antarctic land mass to Weddell Sea, while Filchner will advance in the opposite direction from Weddell Sea. If they meet, certain members of each party will join the other and they will then continue their explorations independently. It was agreed that the 20th meridian west of Greenwich shall be the boundary between the German and Scottish fields of work, the Germans working west, and the Scotch east of that line. Coats Land will be the land base of the Scottish Expedition, while the Germans will endeavor to find good camping ground a considerable distance to the west.

Sir Ernest Shackleton hopes to return to Antarctica in 1912, his plan being both to circumnavigate the land mass and also to penetrate it by one or more sledge expeditions. He plans to start from Cape Adare in South Victoria Land and go westward, aiming first to trace the coast that bears the name of Wilkes Land. It is highly desirable to complete the explorations that Wilkes began and the Antarctic offers no more important field for exploration.

From a study of all that is known of the distribution of atmospheric pressure over the Antarctic area, Prof. W. Meinardus has reached the tentative conclusions that the land area may have an extent of 8,680,000 square miles and that its mean height may be about 6500 feet. If these estimates are comparatively correct, Antarctica is one and a half times as large as Europe; and the mean height of Asia, the highest of the continent, is less than half that of Antarctica. Some scientific journals of Europe say that the values Dr. Meinardus gives for the size and the mean height of Antarctica may not be far from the truth.

**ARCTIC.** Captain Mikkelsen and a small

party in 1909 left Copenhagen in their ship *Alabama* to search for the papers and journals of the ill-fated Mylius Erichsen and his two comrades who lost their lives after completing the survey and mapping of the northeast coast of Greenland in 1907. In the fall of 1909, Mikkelsen with two companions reached Lambert Land, where they found the body of Brönlund, one of Erichsen's companions. No traces could be found of the bodies of Erichsen and Hagen. Mikkelsen's party spent the winter of 1909-10 on the coast and on March 3, 1910, Mikkelsen and Iversen started north with fifteen dogs and provisions for 105 days to explore Denmark Fjord in the hope of finding the lost records. The explorer planned, if conditions were favorable after completing his search, to travel round the northern coast of Greenland to Cape York and return home by whaler. Ten days after he left the winter camp, the *Alabama* was sunk in the ice and the party there were taken home in July, by a sealing vessel. Nothing has been heard from Mikkelsen, but ample supplies have been left for him and his comrades in case they return by the east coast.

In his third Arctic voyage on the *Belgica*, the Duke of Orleans made many soundings in the Greenland Sea, between Greenland and Spitzbergen, which so far supplemented his work of 1905 that we now have a good idea of the depths over a large part of this ocean area.

Captain Bernier, the Canadian Polar navigator, resumed his really remarkable work in Canadian Arctic waters, sailing from Quebec on the *S. S. Arctic*, in June, 1910, for a two years' cruise. From Chateau Bay on the Labrador coast he sailed for the northern shore of Baffin Island. He planned further to proceed to Beechy Island at the west end of Lancaster Sound, calling next at Dealy Island in Melville Sound, and then steaming to Winter Harbor on Melville Island at the entrance to McClure Strait, where he expects to spend the winter of 1910-11. In the summer of 1911, he hopes to complete the Northwest Passage to Hershel Island and finally reach Victoria, B. C., through Bering Sea.

It has been supposed for many generations that the Arctic land of Novaya Zemlya consisted of two islands, but a Russian expedition which returned from Novaya Zemlya some months ago brought the surprising information that a waterway from Cross Bay extends clear across to the Kara Sea and they have therefore shown that Novaya Zemlya consists of three instead of two islands.

One of the most interesting results of the recent explorations in Spitzbergen by Captain Dinnar Isachsen's Expedition, which returned to Christiania in September, was the discovery of a not long extinct volcano and hot springs in Bock Bay, a branch of Wood Bay in the northwestern part of the main island. The cone about 1650 feet high consists partly of lapilli and is of Quaternary Age and later than the general glaciation of the region.

**POLIOMYELITIS, ANTERIOR.** See INFANTILE SPINAL PARALYSIS.

**POLISH CANAL QUESTION.** See AUSTRIA-HUNGARY, *History*.

**POLITICAL AND SOCIAL SCIENCE, AMERICAN ACADEMY OF.** A learned society founded in 1889 for the purpose of promoting political and social science in the broad sense of the term. The society has a membership of

5360, of whom about 300 are residents of foreign countries. The academy issues a bi-monthly publication called *The Annals*, of which Professor Emory R. Johnson of the University of Pennsylvania is editor-in-chief. During 1910 numbers of *The Annals* were issued dealing with the following subjects: January, "The New South"; March, "Public Recreation Facilities"; July, "Administration of Justice in the United States"; September, "The Settlement of Labor Disputes"; November, "Banking Problems." There were also issued two supplementary reports, one in September dealing with the work of the National Consumers' League, and the other in December, entitled "The Need for Currency Reform." The Academy holds annual meetings each year, while several monthly meetings are also held. The 14th annual meeting was held in Philadelphia April 8-10, 1910. The subject selected for discussion was "The Administration of Justice in the United States." The sessions were largely attended. At the first session on Friday afternoon, April 8, Hon. John P. Elkin, Justice of the Supreme Court of Pennsylvania made an address on "General Problems Connected with the Administration of Justice." The presiding officer of the session held on Friday afternoon was Hon. James B. Dill, Justice of the Court of Errors and Appeals of New Jersey. Subsequent sessions were presided over by Hon. Charles P. Neil, United States Commissioner of Labor; Hon. Edward S. Stuart, Governor of Pennsylvania; and Hon. James S. Sherman, Vice-President of the United States. Among the speakers at the meeting other than those mentioned were Arthur von Briesen, President of the Legal Aid Society, New York City, Señor Francisco Leon de la Barra, Mexican Ambassador to the United States; Professor George W. Kirchwey of Columbia University, and others. Important papers were read dealing with the following subjects: "Administration of Criminal Law, Third Degree System," by General Theodore A. Bingham, former Police Commissioner of New York City; "Treatment of the Accused," by Major Richard Sylvester; "Treatment of the Offender," by Homer Folks, Secretary of the New York State Charities Aid Association and President of the New York State Probation Commission; "Probation Work for Women," by Maude E. Miner, Secretary of the New York Probation Association; "Reformation of Women," by Katherine Bement Davis, Superintendent of the New York Reformatory for Women; "Fallacies in the Treatment of Offenders," by F. H. Nibecker; "The Juvenile Court, Its Legal Aspect," by Bernard Flexner of Louisville, Kentucky; "Distinctive Features of the Juvenile Court," by Hastings H. Hart, Director of the Department of Child Helping, Russell Sage Foundation, New York; "Functions of the Juvenile Court," by Hon. William H. DeLacy, Judge of the Juvenile Court of the District of Columbia; "Responsibility of Parenthood," by Hon. Robert J. Wilkin, Justice of the Children's Court, Brooklyn, N. Y.; "Juvenile Courts and Probation in Philadelphia," by Hon. William H. Staake, Judge of the Court of Common Pleas, Philadelphia; "Private Hearings, Their Advantages and Disadvantages," by Hon. Harvey H. Baker, Justice of the Juvenile Court, Boston, Mass.; "Use and Abuse of Injunctions in Trade Disputes"; "Remedies for the Administration of Criminal Law," by Samuel Unter-

meyer, Esq., of New York City; "To What Extent are Insane Persons Amenable to Criminal Law?" by John Brooks Leavitt, Esq., New York City; "The Administration of Criminal Law in the Inferior Courts," by Hon. Julius M. Mayer, Former Justice of the Court of Special Sessions, New York City; "The Jury System: Defects and Proposed Remedies," by Arthur C. Train, Esq., New York City; "Reform in Criminal Procedure," by Hon. Everett P. Wheeler, New York City; "Respect for Law in the United States," by Hon. James S. Sherman, Vice-President of the United States, Hon. Frederick C. Stevens, Member of Congress from Minnesota, and Professor George W. Kirchwey, Dean of the School of Law, Columbia University. At the session of the Academy held on December 8, 1910, the need for currency reform was discussed. Addresses were made by Hon. Nelson W. Aldrich, United States Senator from Rhode Island, Hon. Theodore E. Burton, United States Senator from Ohio, Hon. Piatt Andrew, Assistant Secretary of the Treasury, and Hon. George E. Roberts, Director of the United States Mint. The officers of the Academy in 1910 were: President, L. S. Roe, Ph. D., University of Pennsylvania; and Secretary, Carl Kelsey, Ph. D., University of Pennsylvania.

**POLITICAL ECONOMY.** Besides the present article there are a considerable number giving an account of the economic progress of the year in different lines. Under the article **LABOR** will be found references to fourteen special articles on as many aspects of the labor movement and labor problems. Under **FINANCIAL REVIEW** will be found an account of the general economic and industrial conditions of the year; a statement of *Failures*; of *Bank Clearings*; of *Buildings*; of *Stocks and Bonds*, and other items. Special articles are devoted to **PRICES**; **SHIPPING SUBSIDIES**; **TRUSTS**; and the **TARIFF**. Besides a general article on **BANKS AND BANKING**, there are special articles on the different kinds of banking institutions. Under **TAXATION** will be found a discussion of the *Federal Corporation Tax*; the *Income Tax Amendment*; the *Inheritance Tax*; and the principal new laws of the year. Under **INSURANCE** is a treatment of *Life*, *Fire*, and *Fraternal* insurance. The class of subjects now frequently grouped under the term **Social Economics** will be found under their respective titles, such as **POPULATION**, **CONGESTION OF**; **JUVENILE COURTS**; **PENOLOGY**; **PROSTITUTION**, (which includes the *White Slave Traffic*); **OLD AGE PENSIONS**, etc.

**ECONOMIC ASSOCIATION.** The 26th annual meeting of the American Economic Association was held at St. Louis late in December. The total membership reported was 1700, an increase of more than 700 in two years. The programme of the session included an address by the President, Edmund J. James, on the "Economic Significance of a Comprehensive System of National Education." A special session was devoted to the problems of "Money and Prices," at which Professor Laughlin of the University of Chicago contended that the increase in the gold supply is a relatively unimportant factor in the rise of prices, while Professor Fisher of Yale contended that it is the principal factor. Both conclusions were based on elaborate statistical data. The centenary of David Ricardo was observed by a special session devoted to the discussion of his theories. Evidence of the growing interest of economists in the subject of "Business Ac-

counting" was shown in a special session on that subject. "Canals and Railways," "Population and Immigration," "Industrial Accidents and Industrial Diseases," "Taxation," and "Socialism" were other topics of special attention. The discussion of immigration brought out clearly the fact that the bad distribution of wealth is due in large part to the unequal distribution of men in the different ranks of society; the unskilled group in America is made enormously large both by immigration and higher birth rate of the poorer classes. The relation of races on the Pacific coast was discussed from the sociological view-point, the solution resting primarily on the question whether two physically different races can peacefully occupy the same territory on a basis of equality. One of the papers on taxation favored a State income tax; and another developed the proposition that the proportion of unearned increment not only in land values but in many forms of wealth is much greater than commonly supposed. The following officers were chosen for 1911: President, Henry W. Farnham of Yale; vice-presidents, F. N. Judson of St. Louis, Joseph French Johnson of New York, and B. H. Meyer of Washington, D. C.; secretary-treasurer, T. N. Carver of Harvard.

**DEATHS.** The deaths of several economists of international repute occurred during the year. Sir Robert Giffen, the English statistician and economist, was born in 1837; served as an editor on the *Economist*; and spent his best years as a government statistician. Nicholas G. Pierson, the distinguished Dutch economist, born in 1839, was at different times professor in the University of Amsterdam, president of the Bank of Netherlands, Minister of Finance, and Prime Minister of Holland. M. Léon Walras, born in 1834, one of the independent discoverers of the marginal utility principle, was after 1870, professor of political economy in the University of Lausanne. William G. Sumner, born in 1840, was for 37 years a professor in political and social science at Yale University. He achieved fame as a teacher, an economist and a sociologist.

#### BIBLIOGRAPHY

Following is a classified bibliography of some of the more important books of the year. For more extended lists see *The Economic Bulletin*, or *The Annual Library Index*.

**GENERAL WORKS.** Conrad, Elster, Lexis, and Loening, *Handwörterbuch der Staatswissenschaften*, vols. 2, 3, and 4 (3d ed. completely rev'd); further volumes of the *Documentary History of American Industrial Society* in ten volumes, edited by John R. Commons and others; *Bibliography of Social Science. The Monthly Journal of the International Institute of Social Bibliography*—being a complete international bibliography of books, periodical literature, government reports and public documents in every field of social science: Böhm-Bawerk (E. v.), *Kapital und Kapitalzins. P. iii, Positive Theorie des Kapitals* (3d ed., containing a revision of the first two books of the positive theory of capital, 1909); Grunzel (G.), *Grundriss der Wirtschafts-politik* (in 5 vols.), vol. iii: *Industriepolitik*; Philippovitch (E. v.) *Die Entwicklung der wirtschaftspolitischen Ideen im 19. Jahrhundert*; Smith (Adam), *The Wealth of Nations*, with introduction by Prof. E. R. A. Seligman (in 2 vols. of Everyman's Library); Leroy-Beaulieu (P.), *Traité théorique et pratique d'économie politique* (5th ed.—4 vols.).

**LABOR.** Abbot, *Women in Industry: a study in American economic history*; Andrews (I. R.), *Review of Labor Legislation*, 1910, one of a number of important publications of the American Association for Labor Legislation; McClean (A. M.), *Wage-earning women*; National Society for the Promotion of Industrial Education has issued a number of reports and studies bearing on the general subject of vocational training and on the education of workers in special trades; Rountree (B. S.), *Land and labor: lessons from Belgium*; *Social condition of labor in Germany*, being a report of a tour by British workmen published by The Tariff Reform League; Wood (G. H.), *The history of wages in the cotton trade during the past one hundred years*; *Reports of the National Immigration Commission*, have a great deal of matter bearing on labor conditions in the United States; Crosby (O. T.), *Strikes—when to strike, how to strike*. A books of suggestions for buyers and sellers of labor; Dawson (W. H.), *The German workman; a study in national efficiency*; Eliot (C. W.), *The future of trades-unionism and capitalism in a democracy*; Gompers (S.), *Labor in Europe and America*.

**MONEY AND BANKING.** Here should be mentioned the entire list of *Publications* of the National Monetary Commission, enumerated under the article on the Commission and constituting a rather complete library on these subjects; *Guarantee of Deposits*, being a report of the Wisconsin legislative committee on additional security for depositors in State banks; Disbrow (C. W.), *An analysis of the banking and currency system of the United States, indicating the cause of periodic panics and suggesting a remedy*; Ireton (R. E.), *A central bank*; Crane (W. H.), *A scientific currency*; Raffard (J. C.), *Le mouvement de concentration dans les banques de dépôt en Angleterre*; Ranking (D. F.), *Bills of exchange* (4th ed., rev. and enl.); Wolff (W. W.), *People's banks; A record of social and economic success*; Brace (H. H.), *Gold production and future prices*; Davis (J. F.), *Bank organization, management and accounts*.

**TAXATION AND PUBLIC FINANCE.** Dawson (W. H.), *The unearned increment* (3d ed.); Good (T.), *The real case for tariff reform. With facts for workmen by a workman*; Ashley (W. J.), *The tariff problem*; Jackson (C.), *Fiscal fallacies; a comparison (of Great Britain) with Germany*; Wateson (J. R.), *The case for tariff reform*—this and the preceding three are four of many books relating to the British fiscal problem; International Tax Association, *State and local taxation*, a report of the 3d international conference, Louisville, September, 1909; Howe (F. C.), *Privilege and Democracy in America*, a study of the single tax as a remedy for monopoly and exploitation; Seligman (E. R. A.), *The shifting and incidence of taxation* (3d ed., rev. and enl.); Taussig (F. W.), *The tariff history of the United States* (5th ed., including a study of the Payne-Aldrich Act of 1909); Wright (C. W.), *Wool-growing and the tariff. A study in the economic history of the United States*; Chomley (C. H.), *Protection in Canada and Australia*; United States Commissioner of Corporations, *Taxation of corporations*, parts I and II covering the New England and Middle Atlantic States; Meredith (H. O.), *Protection in Germany: a history of German fiscal policy during the 19th Century*. This list is by no means inclusive.

**TRADE AND TRANSPORTATION.** Dixon (F. H.), *A traffic history of the Mississippi River system* (1909); Haney (L. H.), *A congressional history of railroads in the United States*; Johnson (E. R.) and Huebner (G. G.), *Railway rates and traffic*; Lustig (H.), *Études sur les chemins de fer de l'Amérique du Nord*, a manual for bankers and investors; Paxton (F. L.), *The Pacific railroads and the disappearance of the frontier in America*; McPherson (L. G.), *Transportation in Europe*; Morris (R.), *Railroad administration*; *Preliminary Report of the United States National Waterways Commission*; Walker (A. H.), *History of the Sherman Law of the United States of America*; Bureau of the Census, *Special report on street and electric railways 1907*; Clark (J. M.), *Standards of reasonableness in local freight discriminations*.

**POLITICAL SCIENCE ASSOCIATION, AMERICAN.** A learned society founded in 1903 for the study of the subjects implied in its title. It has grown rapidly since its organization and had a membership in 1910 of approximately 1350. The Association holds annual meetings and the meeting of 1910 was held December 22-30 at St. Louis. The president of the Association, Woodrow Wilson, at that time governor-elect of New Jersey, made a notable address entitled "The Law and the Fact." In this he emphasized the peculiar province of political science. The address was a valuable one, both for its high literary quality and its elevated moral tone. The topics to which the various sessions of the meetings were devoted were the following: "Recent Constitutional Developments in Europe"; "Municipal Government"; "Judicial Organization and Procedure"; "Primary Elections," and "International Law." The first of these subjects was discussed in an exceptionally interesting series of papers dealing respectively with pending or recent constitutional changes in England, Germany, Russia, and Turkey. Among those who participated were: Professor T. F. Moran, Professor W. A. Shepard, I. A. Hourwich, and Professor A. H. Sybber. In the session devoted to city government, recent tendencies in municipal charters were summarized by Dr. H. E. Flack. The session devoted to primary elections was especially interesting as it afforded an opportunity for reports on the practical working of the direct primaries in Illinois, Missouri, Iowa, and other States. In the discussion relating to judicial organization procedure the defects of the present conditions of administering justice in this country were pointed out and remedies for these conditions were suggested. A portion of one session was devoted to the discussion of topics within the field of international law and diplomacy. The Association publishes the *American Political Science Review* and an annual volume of *Proceedings*. The following officers were elected for 1911: President, Simeon E. Baldwin; first vice-president, Albert Bushnell Hart; second vice-president, Emlyn McClain; third vice-president, Ernest Freund; secretary and treasurer, W. W. Willoughby.

**POLO.** The game of polo enjoyed a season of great popularity in 1910, a condition largely brought about by the visit to the United States of the Hurlingham and Ranelagh clubs of England. The Hurlingham players won all of the important matches, their most notable victories being the two over the Burlingame club which gave the visitors possession of the American

Polo Cup and the Spreckel's Cup. The Ranelagh team played more matches than Hurlingham and suffered several defeats. In most instances, however, the reverses were due to the handicaps the English players gave the Americans. A summary of the principal international contests follows: Hurlingham defeated Burlingame for the California championship and Spreckel's Cup by a score of 8 to 4 and for the American Polo Cup by a score of 9 to 1 and also came out victorious in a game with the Meadow Brook Club, the score being 5½ to 4. Ranelagh defeated the New Haven Country Club 2d in a handicap match by 18 to 16½; Point Judith by 8 to 1; Perroquet Club in the final for the national championship by 7½ to 3½; a picked team composed of W. Baiding, J. M. Waterbury, Jr., L. E. Stoddart, and D. Milburn by 12 to 6½ and 6 to 5, and Rockaway Club by 10 to 8. Ranelagh lost to the Freebooters, a picked team, in a handicap match by 4 to 6½; to Point Judith by 8 to 11; to Meadow Brook Club in the finals for the Point Judith Cup by 4½ to 10½; and by 7½ to 9½; and to Bryn Mawr in a handicap match by 12½ to 14½.

The national senior championship of the United States was won by the Meadow Brook Club which defeated Bryn Mawr in the deciding match by 13½ to 3 and the national junior championship by the Myopia Club 2d, which defeated Bryn Mawr 2d. In other important matches between American teams Meadow Brook defeated Rockaway by 15 to 3½; Bryn Mawr defeated New Haven by 8 to 6½; New Haven defeated Perroquet Club by 6½ to 3½; The Wanderers defeated Point Judith by 8 to 7½, and Gladstone defeated New Haven 2d by 13½ to 12½.

**OLONIUM.** See CHEMISTRY.

**POMPEII.** See ARCHÆOLOGY.

**POOLE, REGINALD LANE.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**POOR, CARE OF THE.** See CHARITY.

**POPULATION.** See PARAGRAPHS on the subject in articles on countries and on States of the United States; also UNITED STATES CENSUS.

**POPULATION, CONGESTION OF.** The Ninth International Housing Congress met at Vienna, Austria, May 30 to June 4, with 1400 delegates, representing governments and societies. Conferences were held on municipal ownership of land and of dwellings, municipal loans for private building, tenements versus single houses, and how to build cheaply. The experience of German cities in buying land and building houses for rent was told in detail. The congress was agreed that cities should lend money to private builders at low interest. The single cottage plan, after the models of the English garden cities, was considered the ideal solution of the problem of housing workingmen's families. An exhibit was held in connection with the congress.

The Second National Conference on City Planning and Congestion was held at Rochester, New York, in May. Repeated distinction was made between room congestion, which may occur anywhere and is not uncommon even in villages, and site congestion which is peculiar to the larger cities. This latter is due largely to the desire of people to be near their work. Forty-five minutes was thought to be the limit for transit to and from work. Congested areas

have their own attractions in the way of variety and amusement, and competition reduces prices of commodities. The gregarious instinct, especially the desire of aliens to be near their own countrymen, is an important cause. Once so settled, ignorance of better conditions elsewhere and inertia result in their staying. The necessity and means of developed transit facilities; the advantages of a scientific city plan; the results of city planning in various American cities, notably Hartford, Conn., and Denver, Col., and in England and Germany; and the effect of taxing land values only, buildings being exempted, as an incentive to putting highest possible improvements on land, were discussed. The Conference adopted as its future title, the American Conference on City Planning. Its membership fee is five dollars. Its sessions are to be held in various cities, and its proceedings published in full.

**NEW YORK.** The subject was discussed at the first annual meeting of the New York City Conference of Charities and Corrections in May. Prof. Frank J. Goodnow, chairman of the committee on congestion, stated his belief that no significant improvement in living conditions in the city would be possible until congestion is relieved. He gave as the causes of congestion, a bad system of transportation; lack of a city plan; high rents that make the taking of boarders necessary; and a system of taxation conducive to over-crowding. The cure was to be found in better transportation, building restrictions in the suburbs so as to insure light and air, better distribution of immigrants, and tax reforms. Dr. J. S. Billings of the Health Department presented statistics showing a direct correlation between the death rate and the density of population. A similar correlation exists with sickness and ill-health, which reduce economic efficiency and standards of living.

As a result of the agitation by the Committee on Congestion of Population in New York, a resolution was passed by the Board of Aldermen in April asking the Mayor to appoint an unpaid City Commissioner on Congestion of Population. This was done. This Commission was to follow up the work of the Committee and to report by March, 1911, a comprehensive plan for the relief. The Commission organized fourteen sub-committees dealing with the following phases of the subject: parks, playgrounds, schools and recreation centres, streets and highways, transit, docks and ferries, housing conditions, regulation of buildings, and location of new settlements, factories, taxation, legislation, public health, immigration, administration of laws and municipal ordinances, labor and wages, charities, public squares and buildings, crime and delinquency. Numerous hearings were held. Experts before the taxation committee recounted the results accomplished in Northwest Canada and in Germany by lower rates upon improvements than upon the land itself or by taxing at high rates the unearned increment in land values. The Committee on labor and wages was making an intensive study of the earnings of different classes in different parts of the city; the proportion spent for rent; and the relation of low wages to poverty. It presented plans for an authoritative arbitration and conciliation board for the city and for a municipal labor bureau to coordinate and supplement the 900 licensed employment bureaus in the city. The committee on parks etc., found

that certain parcels of land owned by the city had increased many fold in value since purchase; its study of foreign experience showed that some German cities own from one-tenth to one-half the land upon which they rest and their income from this source is sufficient to make taxes unnecessary. Dr. Albert Snedekum, a member of the German Reichstag, stated that German cities solve the housing problem in part by cheap commutation rates for workmen on the railways, which are there owned by the cities. Thus workmen living 20 miles from Berlin travel back and forth for 40 cents per week. He discussed the success of the cooperative building associations, which have multiplied in Germany and England. They buy a tract of land which is thereafter owned in common. In Germany they get the use of funds derived from the compulsory workmen's insurance for building cottages. The committee on charities found hundreds of philanthropic and charitable societies and institutions; it estimated that there were about 135,000 sick people in the city all the time; and that about 500,000 were given relief of some kind each year, at a total expense of \$35,000,000. The factories committee took up a study of model villages and the development of factory sites, shipping and terminal facilities in Hamburg and elsewhere.

Plans were developed by the Russell Sage Foundation for the creation of a model village on Long Island at a cost of \$2,750,000.

The National Housing Association was formed in New York City in February with Robert W. De Forest, John M. Glenn and Lawrence Veiler as executive officers. It will study the causes of congestion; develop opinion favorable to good legislation, and seek to improve housing conditions by every possible means. Its board of directors includes many leading social workers from the entire country.

Almost the last official act of Governor Hughes was to appoint an unpaid commission of twelve members to study methods of distributing population in New York State.

**BOSTON.** The Housing Committee of Boston after a six months' investigation reported that "this fact of congestion stands on the threshold of the better housing problem, and until it is dealt with no important progress can be made." It correlated a steady rise in land values in the North and West Ends with an increasing congestion, accompanied by an increase in the manufacturing carried on there. It reported that some manufacturers had admitted that it is cheaper to "burn men and women than coal." The committee stated its belief that manufacturing is not only attracted to a section by the presence of abundant labor, but also, by raising rents, forces laborers to over-crowd their dwellings. In the tenement sections of the sixth and eight wards, where 44,000 people live, 16 per cent. of the rooms were dark; almost one-half of these people had less than 400 cubic feet of air space per occupant in their bed-rooms. Though streets are narrow, over 80 per cent. of the land is covered by buildings. Water and toilet facilities were below proper standards of health and decency. In four blocks studied intensively, 22 per cent. 32 per cent., 45 per cent. and 54 per cent. respectively of the families kept boarders. The report points out that in order to bring about better conditions in Boston a policy extending to all parts of the metropolitan area must be

developed; for little good would be accomplished by relieving congestion in Boston by increasing it in surrounding towns. Mr. Estabrook of the committee recommended workmen's trains; location of factories in suburbs; tax reforms, and coöperative tenant societies. The Massachusetts Civic League organized two committees, one to secure an enforcement of laws in Boston relating to health and housing, and the other to develop opinion favorable to a constructive housing policy throughout the State.

**POBK.** See MEAT AND MEAT INSPECTION.

**PORT ARTHUR.** See KWANTUNG.

**PORTER, CHARLES TALBOT.** An American mechanical engineer, died August 28, 1910. He was born at Auburn, N. Y., in 1826 and graduated from Hamilton College in 1845. For several years he practiced law and then engaged in engineering, forming a partnership with John Allen to control the Porter-Allen engine. This firm was the first to use with success high rotative speed in stationary engines. He was the inventor of a central counterpoise governor for steam engines (1859) and of an isochronous centrifugal governor for marine engines (1861). He published *Mechanics and Faith, Spiritual Truths in Nature* (1885).

**PORTER, WILLIAM SYDNEY.** An American short story writer, better known under his pen name, "O. Henry," died June 5, 1910. He was born in Greensboro, N. C., in 1867 and received an academic education in Texas. He spent some time on a cattle ranch in that State and then secured a position as reporter on the *Houston Post*. While still engaged on this paper he purchased the famous local paper known as *Brann's Iconoclast* and made of it a ten-page weekly story paper, writing most of the stories himself. He soon renamed this paper the *Rolling Stone*, but did not continue it long. He then visited Central America where he obtained material for some of his most amusing stories. After an unsuccessful attempt to raise bananas he returned to Texas and for a few weeks was employed in a drug store. He then removed to New Orleans and began literary work in earnest. His stories were sent all over the country but few of them were accepted until 1901, when he went to New York. His work soon became well known and he was in a few years probably the most popular writer of short stories in the country. His stories were marked by a remarkable freshness of style and by keen penetration and considerable originality. His short stories were collected under the following titles: *Cabbages and Kings* (1905), *The Four Million* (1906), *The Trimmed Lamp* (1907), *The Heart of the West* (1907), *The Gentle Gaffer* (1908), *The Voice of the City* (1908), *Options* (1909), *Roads of Destiny* (1909) and *Whirligigs* (1910). See LITERATURE, ENGLISH AND AMERICAN, Fiction.

**PORT OF LONDON ACT.** See GREAT BRITAIN, History.

**PORTO RICO.** A territorial possession of the United States, ceded by Spain as a result of the Spanish-American War by the treaty of December 11, 1898. It is the easternmost of the four Great Antilles.

**POPULATION.** According to the Thirteenth Census, the population of Porto Rico in 1910 was 1,118,012 as compared with 953,233 in 1900.

**AGRICULTURE.** The local industries of the islands are almost entirely confined to the preparation of agricultural products for the market,

and under ordinary conditions the activity of local industries increases or decreases in proportion to changes in the quantity of agricultural products. An exception to this rule, however, occurred during 1910 with respect to fruit canning. Prices offered for fresh fruits, especially pineapples, in the United States was so high at times as to warrant shipment instead of the sale as usual of undersized fruit to canning factories. There was a material increase in the amount of distilled spirits, cigars and cigarettes manufactured. Increased industrial activity in all directions was further represented by the registration of 14 domestic and foreign corporations for sugar making, 18 for the purpose of raising, canning and packing fruit and 22 to engage in coffee and cattle raising, shipping and transportation, and numerous other enterprises.

Porto Rico being an agricultural country, a comparatively small proportion of its principal products are used in local consumption, hence the shipments of its principal crops furnish a fairly accurate index of agricultural conditions. These shipments showed a marked increase during 1910 in the exportation of each product and indicate that, with the exception of tobacco leaf, oranges and canned pineapple, the quantities exported in 1910 exceeded those shipped during any previous year. The shipments of sugar during 1910 aggregated 284,522 tons valued at \$23,545,922, representing over 60 per cent. of the valuation of all products exported. This may be compared with the exportation of 68,909 tons in 1901.

The exports of cigars and cigarettes has shown a marked increase during recent years. In 1910 151,724,438 cigars were exported as compared with 140,302,271 in 1909. During the same period 13,142,000 cigarettes were exported as compared with 11,244,500 in 1909. A considerable quantity of tobacco leaf was also exported.

Although the coffee industry has not yet reached the stage of development that it should and can by scientific methods profitably attain, the exportation during 1910 exceeded that of any previous year in quantity and aggregate value. It amounted to 45,209,792 pounds valued at \$5,899,602, as compared with an export of 28,489,236 in 1909 valued at \$3,715,744.

The fruit industry has grown to marked commercial importance since 1907. The aggregate value of the fruit shipments during 1910 was \$1,635,617, of which \$582,716 represents oranges and \$505,044 fresh pineapples. A considerable quantity of cocoanuts was also shipped and the growing of grapefruit began to be important.

**COMMERCE.** The total exports of Porto Rico during the fiscal year 1910 amounted to \$37,960,471 of which \$32,095,897 represents the value of exports to the United States and \$5,864,574 to foreign countries. The corresponding figures for 1909 were \$30,391,325 the value of exports; \$26,394,312 to the United States, and \$3,996,913 to foreign countries. The imports for the fiscal year 1910 amounted to \$30,634,855. Of this amount, \$27,097,654 represents imports from the United States. The purchases made from Porto Rico were greater than from any other non-contiguous American territory. The total volume of trade for the fiscal year 1910 amounted to \$68,595,326 as compared with \$56,935,551 in 1909. For the calendar year ending December 30, 1910, the imports from the United States amounted to \$31,389,794, while the ex-

ports amounted to \$35,706,029. The imports from foreign countries in the calendar year amounted to \$3,826,393 and the exports to \$6,147,000. The value of the sugar exported to the United States in the calendar year 1910 was \$26,876,709; tobacco, \$4,840,945; fruits and nuts, \$1,183,232.

**TRANSPORTATION AND SHIPPING.** Improvements in the roads and communication on the Island were continued during 1910. The legislature of 1909 appropriated \$595,000 for the construction of roads. This law also created a commission to be known as the Road Commission to determine what roads should be constructed under this appropriation. During the year over \$71,000 was spent on the municipal roads of the Island. During the fiscal year there were 526 vessels entered in the port of San Juan with a total tonnage of 1,275,376 tons. 263 of these were American steamers with a gross tonnage of 765,879 tons; 84 were American sailing vessels; 125 were foreign steamers, and 54 were foreign sailing vessels. There was urgent necessity for better facilities for loading vessels in this harbor.

**EDUCATION.** The number of pupils enrolled in all the schools of the Island, including special schools, was in 1910, 121,453. Of these 90,917 were white and 30,536 were colored. The average daily attendance was 84,258 and the number of teachers employed was 1743, of whom 1548 are white and 195 colored. The year was a prosperous one so far as educational advance was concerned, and although less money this year was available for educational purposes, 15 per cent. more pupils were enrolled in the schools. The total expenditures for school purposes in the fiscal year 1909-10 was \$825,339 by the insular government and \$419,161 by the local government. The island is divided for purposes of administration and supervision into 43 districts; these districts are divided into three classes, first, municipalities having more than 100 schools; second, municipalities having between 50 and 100 schools; third, municipalities having less than 50 schools. During 1910 there were two first-class, three second-class and 38 third-class districts. The rural schools of the Island are by far the most numerous, and with few exceptions are located in country districts. During 1910 36 one-room and one two-room buildings were constructed in the country. The schools in the 66 towns and cities of the Island are carefully graded and compare very favorably with the better school systems of the United States. A new course of study for graded schools was put into effect throughout the Island during 1910. This requires a separate textbook in English for pupils from the first grade up. There are maintained in nineteen different parts of the Island partial or complete high school courses. Eighteen of these are known as "continuation schools" and offer only the first or first and second years of the high school course. On March 1, 1910, there were enrolled 456 pupils in the high schools of San Juan, Ponce and Mayaguez, in which cities are maintained first-class high schools. Night schools were maintained during the year in 65 of the 66 municipalities of the Island. The total enrollment in these schools was 8624. A notable feature of the school system are the school savings banks, which have been established in 31 towns in the island. At the end of the year 1909-10 deposits in these banks amounted to

\$8883. School libraries have been placed in nearly all the important schools of the Island.

The University of Porto Rico, established by an act of the Insular legislature on March 12, 1903, includes the department of natural sciences and engineering, a department of liberal arts, department of medicine, department of laws, department of pharmacy, department of architecture and the university hospital. The university as at present organized consists of three departments or colleges, each with its dean and corps of instructors, but all under the supervision of the chancellor of the university. These colleges are the normal department, college of agriculture and college of liberal arts. The latter was inaugurated at the beginning of the school year September 26, 1910.

**HEALTH AND SANITATION.** The number of deaths per thousand during 1910 was 22.10, which was lower than that of any year since the last two decades, excepting 1908-9. The seven principal causes of death were tuberculosis, diseases of infants, bronchial diseases, malaria, intestinal diseases, anæmia and old age. The total number of births during the year was 37,443 and of deaths, 27,451. In connection with the work of safe-guarding the food supply of the people the health authorities inspected 84,250 animals to be slaughtered for consumption. The work of combating tuberculosis was continued during the year. An Anti-Tuberculosis League has been organized which raises funds for the prosecution of the work.

Anæmia or hookworm disease (q. v.) is known to have resulted in 1339 deaths in Porto Rico during 1910. The presence of this disease was first discovered in Porto Rico in 1900. Dispensaries are maintained throughout the Island at which 49,407 patients were treated during the year with the result of 19,423 complete cures and the improvement of 6966 cases. A conservative estimate places the number of those afflicted at not less than 300,000.

**CHARITIES AND CORRECTIONS.** By an executive order of March 23, 1910, a board of visitors was appointed to inspect charitable and correctional institutions with a view to reporting upon and making recommendations, if necessary, as to improvements in their management, control or condition. In the insane asylum of the Island there were in 1910 338 inmates; at the blind asylum at Ponce 163 patients were admitted during the year; and in the Leper Colony maintained on Cabras Island there were 25 patients.

The Island has no suitable buildings for its penal institutions. With one exception its district jails, as well as its penitentiary, are maintained in inadequate buildings, originally constructed for other purposes. The building occupied by the penitentiary, in which at the end of the year 1910 there were 594 convicts, is wholly unsuited for such use. A number of convicts are profitably employed upon the insular road system. A reform school for boys was completed and occupied during the fiscal year.

**FINANCE.** The total assessed value of all property of the Island at the end of the fiscal year 1910 was \$121,806,149 as compared with a total valuation of \$117,616,625 in 1908. Personal property was assessed at \$23,536,414 and real property at \$98,329,736. The total resources at the end of 1910 were \$16,694,881. The total income for the fiscal year amounted to

\$3,737,893 and the balance at the end of the fiscal year amounted to \$711,022.

#### POLITICS AND GOVERNMENT

Governor Colton in his annual message for the fiscal year ending June 30, 1910, points out the salutary effect of the Act of Congress, approved July 15, 1909, and the executive order which followed it upon the same day, placing matters pertaining to the government of Porto Rico in the jurisdiction of one department of the United States. Following a visit of the Secretary of War and Chief of the Bureau of Insular Affairs in December, 1909, a bill was introduced into the 61st Congress which contained recommendations for a new form of government for Porto Rico. This measure after exhaustive hearings and various amendments passed the House of Representatives June 15, 1910. This measure grants collective American citizenship to the people of Porto Rico; a partially but progressively elective senate; subdivides the territory into representative and senatorial districts; bases the right of suffrage upon educational or contributory grounds; extends the appointive judiciary system; establishes a coordinate and cohesive form of insular government in which the legislative and executive functions are to be separated; and an effective health service throughout the Island.

**LEGISLATURE.** The fifth legislative assembly of the Island convened in its second session on January 10, 1910. The most important matter requiring attention was the appropriation of funds to meet the expenses of government during the ensuing fiscal year.

Governor Colton in his annual message to the legislature recommended the reduction of the budget by \$300,000, the publication of an official gazette, the extension of the public school system, better care of prisoners in jails and insane persons in the asylums and the establishment of a leper colony. In the Assembly the leaders of the Unionist party again introduced six bills which in 1909 caused a deadlock and led to the passage by Congress of a bill providing for the annual appropriations. The House of Delegates passed on January 29 the budget for the expenses of the government. This was contrary to the custom of the dominant party, which heretofore had delayed action on the budget, and a refusal of such action brought about the enactment of the Olmsted law by Congress in 1909, which provided that the same budget as in the previous year should be in force if the legislature refused to pass one for the current year.

In August the governor called a special session of the legislature to correct defects in the act which ceded land on the water front to San Juan. A hotel will be erected by a New York company at a cost of \$1,000,000. Governor Colton is one of the directors. The company will also erect and maintain in various parts of the Island several small hotels situated upon roads used by automobile parties and other tourists.

**ELECTIONS.** At the elections held in November the Unionists won every seat, but the Republicans were successful in several cities. Señor Luis Munoz Rivera was elected resident commissioner at Washington to succeed Senor Tullio Larrinaga.

**OFFICERS.** Governor, G. R. Colton; Acting Secretary, M. Drew Carrel; Treasurer, S. D. Gromer; Auditor, —; Attorney-General, F.

V. Brown; Commissioner of Education, E. G. Dexter; Commission of the Interior, John A. Wilson; Resident Commissioner of Territory at Washington, Luis Munoz Rivera.

**JUDICIARY.** Chief Justice, José C. Hernandez; Justices, Emilio del Toro, James H. McLeary, Adolph G. Wolf and one vacancy; United States District Judge, John J. Jenkins; United States District Attorney, José R. F. Savage.

The **INSULAR LEGISLATURE** consists of an upper and lower house. The lower house is the elective branch and has 35 members, five from each of seven districts. All belong to the Unionist party. The legislature sits for sixty days each year, the sessions beginning on the second Monday in January.

**PORTUGAL.** Since Oct. 5, 1910, a republic (formerly a constitutional monarchy) on the western coast of the Iberian peninsula. Capital, Lisbon.

**AREA, POPULATION, ETC.** Total area, 35,582 sq. miles (including the Azores, 922, and the Madeira Islands, 314). Population (1900), 5,423,132. Marriages (1907), 35,357; births, 176,417; deaths, 113,254; emigrants, 41,950 (1908, 40,056). Emigration is chiefly to Brazil and the United States. Lisbon had (1900) 356,009 inhabitants; Oporto, 167,995; Braga, 24,202; Setubal, 22,074.

**EDUCATION.** Primary instruction is free and nominally compulsory, but the law is not enforced, and few of the children of the poor are sent to school. In 1900, 75.1 per cent. of the population above the age of six were illiterate. Schools (1908): 5247 public and over 1600 private elementary; 23 normal (1905), with 1168 students; 32 secondary, with 8624 students; besides special and technical schools and colleges. The University of Coimbra had (1909) 1266 students. Religious toleration prevails, though Roman Catholicism is the State religion.

**PRODUCTION.** The cultivated area of continental Portugal is 26.2 per cent. of the whole; under vines, 3.5; fruit trees, 3.9; forest, 17.3. Wheat, corn, and rye are the principal cereals raised; wine is produced in increasing quantities; about 543,600 acres in 1909 were planted to olives, and the yield of oil was estimated at 11,306,000 gallons. Figs, onions, and potatoes are grown and stock-raising is carried on.

The mines employed, in 1908, 7160 persons; output of sulphur ore, 24,522 metric tons (valued at the mines at 597,478 milreis); wolfram, 620 (340,052); copper precipitate, 3041 (386,150); cupreous iron pyrites, 95,609 (166,995); arsenic, 1655 (90,360); auriferous silver ore, 2224 (58,779), gold (fine), value, 36,990 milreis; anthracite, 4614 tons (19,913); cupreous pyrites, 1121 (19,053); lead ore, 481 (9225); tin ore, 28 (9153).

The value of the fisheries products in 1908 was 5,477,556 milreis (of which sardines, 2,530,260; tunny fish, 440,772); besides 21,152 milreis from the Azores whale fisheries and 393,213 from the cod fisheries.

**COMMERCE, ETC.** The special trade, exclusive of coin and bullion, is given below in thousands of milreis for four years:

	1905	1906	1907	1908
Imports .....	60,678	60,391	61,453	67,257
Exports .....	28,969	30,593	30,410	35,462

For 1909 no totals were available. The principal articles of export are given below, together

with the principal imports and exports for 1908, with their value in thousands of milreis:

Imports 1908	Exports 1908	1909
Wheat .....5,764	Wine .....9,254	9,366
Iron, etc. ....5,053	Animals ....4,051	4,142
Cotton .....4,357	Cork .....2,992	4,132
Coal .....4,232	Fish .....2,223	2,406
Codfish .....3,916	Cottons .....947	1,807
Cottons .....2,180	Fruits .....1,216	1,553
Sugar .....2,516	Timber .....854	970
Machinery .....2,234	Copper .....1,123	905
Rice .....1,878	Olive Oil ....482	694

Of the wine exported, more than half is sent to Brazil and Great Britain. The total (1908) wine exported was divided as follows: Oporto (port), 4,945,417 milreis; *vin ordinaire*, 3,673,973; madeira, 489,184; liqueurs, 145,275. The latest available figures for the principal countries of origin and destination are for 1907: Great Britain, imports 21,046,000, exports 7,368,000 milreis; Germany, 11,940,000 and 2,475,000; France, 6,940,000 and 673,000; United States, 6,315,000 imports (exports not given); Spain, 4,306,000 and 4,971,000; Belgium, 2,237,000 and 937,000; Brazil, 1,901,000 and 5,624,000; Portuguese colonies, 1,988,000 and 4,513,000. Vessels entered (1908), 11,045, of 19,352,976 tons.

Length of railways in operation Dec. 31, 1909, 1758 miles (672 state-owned); of telegraph lines (1907), 5880, and of wires, 13,299; telegraph offices, 516; post-offices (1908), 3682.

FINANCE. The unit of value is the milreis, worth \$1.08. The revenue and expenditure for four years are given below in thousands of milreis:

	1905-6	1906-7	1907-8	1908-9
Revenue .....	60,523	59,943	71,039	70,169
Expenditure .....	63,279	63,265	77,121	75,275

The budget for 1909-10 is given below (1000 milreis):

Rev.	1000 mls.	Exp.	1000 mls.
Indirect taxes .....	29,147	Debt .....	31,057
Direct taxes .....	13,625	Public works .....	10,215
Rec. d'ordre .....	12,712	War .....	7,969
Stamps, etc. ....	6,698	Interior .....	5,594
Domains, etc. ....	4,495	Finance .....	4,590
Other taxes .....	960	Marine .....	3,975
		Civil list, etc. ....	2,896
Total ord. ....	67,637	Justice .....	1,415
Extraord. ....	1,625	Colonies .....	1,125
		Various .....	1,422
Total .....	69,262	Total ord. ....	70,258
		Extraord. ....	4,347
		Total .....	74,605

The expenditure has for many years greatly exceeded the revenue; this deficit has added to the national debt. Total foreign debt, June 30, 1910, 184,448,640 milreis; internal debt, 534,873,260; floating debt (August 31, 1909), 78,540,632. The Bank of Portugal is capitalized at 13,500,000 milreis. The savings banks (2) had (December 31, 1909) 23,576,000 milreis deposits.

ARMY. The participation of the army of Portugal in the political crisis of the year as described below renders difficult any discussion of its strength and organization. Service in the army is obligatory, but exemption by purchase can be secured for certain classes. The army is recruited from three great conscription districts from which an annual quota of about 17,000 men has been obtained. This serves

to form an army maintained on a peace footing of about 30,000 men, these in 1910 being divided as follows: Infantry of the line, 20,000; cavalry, 3000; dragoons, 1800; light infantry, 1200; field artillery, 3400; horse artillery, 600. Guns to the number of 448, a portion of which are of the improved Schneider type, were included in the armament. The figures for the war strength of the Portuguese continued at about 100,000, of which 53,000 were militia, but it was estimated that the ultimate war strength available might amount to 260,000. There is a colonial army of about 10,000 in addition to the regular forces of the republic. There are 4 military districts. Lisbon, Vizeu, Oporto, and Evora, in addition to garrisons at the Azores and Madeira, and the organization of the forces consisted of 4 divisions of the active army; cavalry, artillery and engineers independent of the divisions, the garrisons of the Azores and Madeira, and the reserves.

NAVY. The effective navy (1910) included one armored coast-defense vessel (3200 tons); 5 protected small cruisers (aggregate, 11,266 tons); 14 gunboats, (6876); one torpedo-boat destroyer (530); 4 torpedo boats (240); besides a schoolship, transports, river gunboats, and obsolete gunboats. The personnel includes (1907) 420 officers and 5687 men.

GOVERNMENT. The king (Manuel II) was deposed and a republic proclaimed Oct. 5, 1910. Order was speedily restored by the provisional government, composed as follows: President, Dr. Theophilo Braga (born 1845; assumed office, Oct. 5, 1910); Minister of Justice, Dr. Afonso Costa; Foreign Affairs, Bernardino Machado; Finance, José Relvas; Public Works, Dr. Antonio Luiz Gomes; War, Col. C. Barreto; Interior, Dr. Antonio José de Almeida; Marine, Amaro Azevedo Gomes.

THE REPUBLICAN REVOLUTION: CAUSES. For years past the monarchical parties in Portugal have been weakened by dissensions and unable to form a stable and honest government. The system of rotation in office appeared to be the result of an understanding that the party temporarily in power should not be checked in its corrupt financial practices. When Premier Franco endeavored by illegal means to remove these abuses he succeeded only in stirring up opposition on all sides to his dictatorial policy and in casting further discredit upon the dynasty. His downfall followed the assassination of King Carlos and the Crown Prince in February, 1909. There had been no improvement in general conditions under King Manuel. Rotation in office continued and there were five ministries in the short time that elapsed after his accession. During the recent elections the Republicans had doubled the number of representatives. They were well organized and were ready to seize the first opportunity for decisive action. Plans for a revolution were secretly formed in the early part of 1910, and when the time came for carrying them out the government was unprepared for resistance. The visit of the Brazilian president to the Portuguese Court no doubt called to the mind of the people the overthrow of the Braganza dynasty in Brazil, and the successful setting up of a republic there. Then came the murder of Professor Bombarda, of which the Republican agitators made a very effective use. He was killed by a royalist who had been recently discharged from an insane asylum, and the Royalists denied

that it had any political significance. But inflammatory speeches citing it as a political crime stirred up street riots in Lisbon. These were mainly aimed against the clergy.

**THE OUTBREAK.** Lisbon was in a state of considerable excitement on Saturday, October 1. On the evening of that day the King entertained the Brazilian president at a State banquet and on the following night the Republican civilian leaders held a conference with the military conspirators. What their decision was is not known, but on the night of Monday, October 3, the 14th Regiment raised the standard of revolt and called upon the civilians to join them in marching to the artillery barracks. On Tuesday morning, October 4, this regiment went to the barracks of the First Regiment of artillery. Bands of sailors and hastily armed citizens joined them, and they seized and intrenched an elevation on one of the boulevards to the north of the town. It was only a small body and there were in the city at the time a considerable force of government troops. Only the municipal guards, however, offered any serious opposition, and it looked at one time as if they might drive the small force of revolutionists from their position, but at this juncture guns of two warships opened fire on the Royalists and saved the day. Meanwhile the King remained at the palace until the guns of the fleet were trained upon it, when he fled in a motor car to Mafra and thence by boat to Ericeira. Lisbon was now in the hands of the revolutionists. A republic was declared on October 5, and on the same day a new provisional government was proclaimed under Dr. Theophilo Braga (a professor of literature and well known writer on political subjects) as President, and Bernardino Machado as Minister of Foreign Affairs. A programme of reforms was immediately announced.

**THE PROVISIONAL GOVERNMENT.** The programme of reforms comprised the following promises: Amnesty to political and press exiles and to petty offenders; repeal of the law of summary arrests of February 13, and of Franco's Press law; reform of official style and titles, and a new form of the official oath; extension of legal periods to ten days; vigorous enforcement of the laws of Pombal and other legislation against the Jesuits and religious orders; reorganization of the Lisbon police and the disbanding of the municipal guards for which Republican guards were to be substituted. On October 10th the provisional government published its declaration concerning the religious communities, declaring in force from that time the laws of 1759, 1767 and 1834, which proscribed Jesuitical establishments. It forbade the meeting of any assembly of three or more Jesuits and it confiscated properties of the Jesuits and other monastic orders. On October 12 the new Minister of Finance declared that the government would respect all existing contracts, treaties and orders, and the national debt; that it would reduce the deficit in the budget by revising the taxes and by granting financial autonomy to the colonies; that it would strengthen the army and navy and develop the colonies and that it would maintain the alliance with Great Britain. The two chief internal reforms were the establishment of compulsory secular education and the separation of Church and State. Soon afterwards it issued a proclamation proscribing

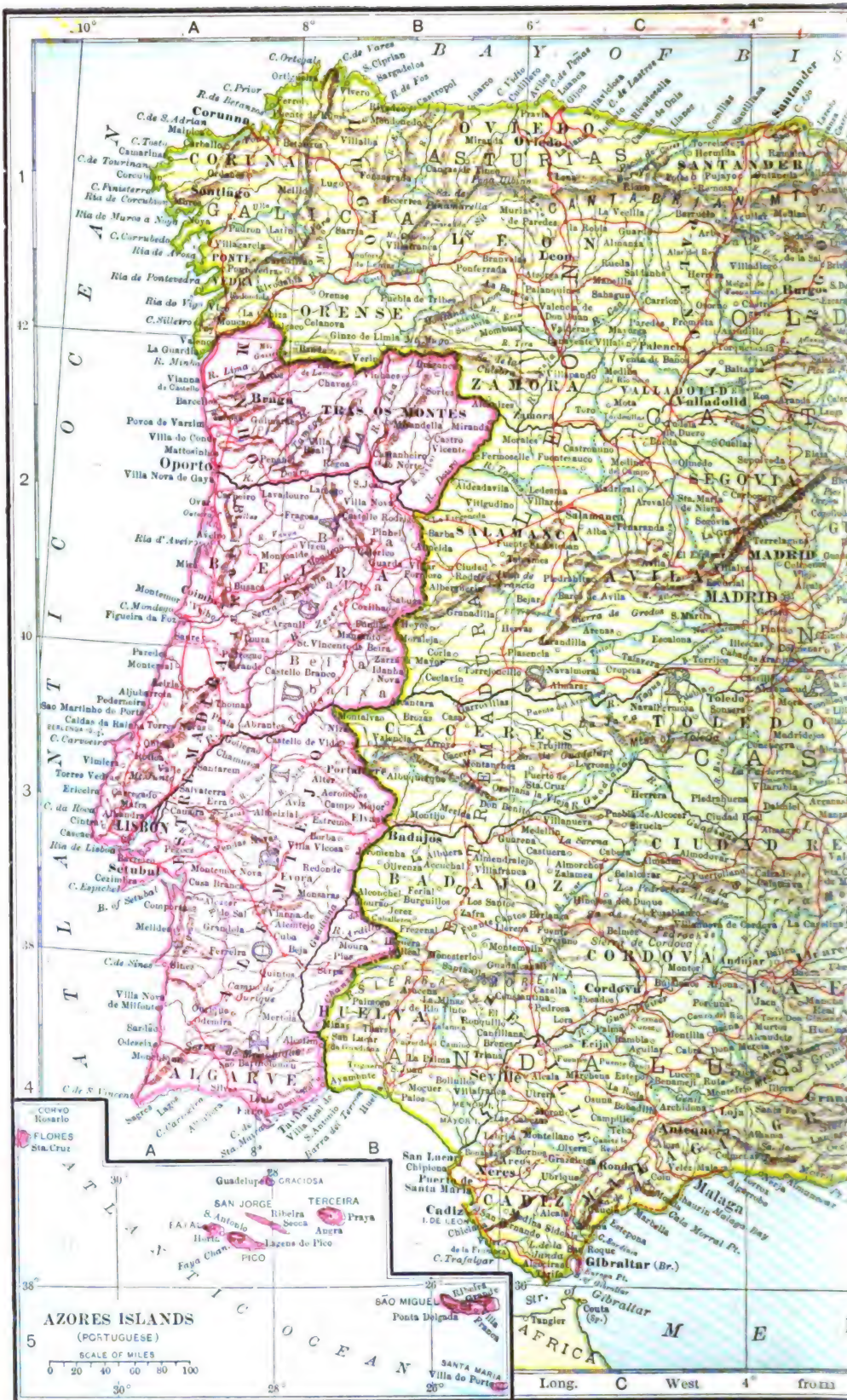
the Braganzas. This declared that the Braganza family was deposed by the revolution of October 5 and exiled for all time, and that this proscription included the ancestors and descendants of ex-King Manuel to the fourth generation. On October 15 it abolished the Council of State and the House of Peers. At the end of October a new press law was promulgated authorizing free discussion in political and religious matters, and providing for trial of press offenses by jury. On October 30 Senhor João Franco, the former "Dictator," was arrested on the charge of illegal administration and the enforcement of dictatorial decrees, but was released on bail. The expulsion of the Jesuits was complete by November 4, when a body numbering 50 were sent on a steamboat to the Netherlands. By November the new Portuguese government had been recognized by four foreign Powers, namely, Great Britain, France, Italy and Spain, and later it was recognized by Brazil. At the close of the year 1910 it was still too soon to determine how effective the new government was likely to be, but from various accounts it appeared that the President was hardly more than a figurehead, being a visionary person of scholarly habits, incompetent to deal with practical affairs, and that he had been virtually superseded in the administration by his nominal subordinates. The movement did not seem to be a popular one, but to proceed from the educated middle-class. The people at large were illiterate, and apathetic toward political questions. The percentage of illiteracy in Portugal has been estimated at nearly 80 per cent. The difficulties before the new government were very serious, the public debt being enormous and the finances in a state of great confusion.

**PORTUGUESE EAST AFRICA**, or **MOZAMBIQUE**. A Portuguese colony on the east coast of Africa. Area, about 293,860 square miles; population, about 3,120,000. Capital Lorenzo Marques (also a port), with about 10,000 inhabitants. Other ports are Mozambique (5500), Beira (4500), Inhambane (3400), Chinde (3000), and Quilimane. The chief products and exports are rubber (in 1908, from the state territories 104 tons, from the Mozambique Company's territories 75 tons), sugar, coconuts, beeswax, and minerals (coal and gold). The Mozambique Company leases from the government and administers the Manica and Sofala region; the Nyassa Company, the region between the Rovuma, Lake Nyassa, and the Lurio. The trade is shown below for 1908 in thousands of milreis:

	Impts.	Expts.	Re-eps.	Trans.
State Ter.....	5,617	3,905	4,836	20,588
Moz. Co.....	1,611	1,377	3,875	3,021
Nyassa Co.....	348	334	38	14

Vessels entered at ports of state territories (1908), 1174, of 2,392,758 tons; at Beira, 381, of 384,499; at the Nyassa Company's ports, 181, of 166,208. The Delagoa Railway from Lorenzo Marques has a length in the colony of 57 miles, and is continued to Pretoria (290 miles). The Beira line to Umtali, on the border of Rhodesia, has a length of 204 miles in the colony, and is continued from Umtali to Salisbury. The line under construction from Lorenzo Marques to the Swaziland border is completed for 42 miles. There are over 2200









miles of telegraph line. Estimated revenue (1909-10), 5,291,444 milreis; expenditure 5,112,758. Governor-General of the state territories (1910) E. A. Garcia Marques.

**PORTUGUESE GUINEA.** A Portuguese colony on the west coast of Africa. Area, about 13,940 sq. miles; population, about 820,000. The adjacent archipelago of Bijagoz, with the island of Bolama, is included with Portuguese Guinea. Capital, Bolama, on the island of Bolama. Rubber, wax, oil seeds, ivory, and hides are exported. Imports (1908), 857,155 milreis; exports, 492,238. Tonnage entered, 128,176. Chief port, Bissau. Estimated revenue (1909-10) 272,860 milreis; expenditure, 332,349. Governor (1910), Lieutenant C. A. Pereira.

**PORT WINE.** See LIQUORS, FERMENTED AND DISTILLED.

**POSITIVE ELECTRICITY.** See PHYSICS.

**POSSART, ERNST VON.** See DRAMA.

**POSTAL SAVINGS BANKS, ARGUMENTS FOR AND AGAINST.** The steady development during the past few years of a public opinion favorable to a national system of postal savings banks finally secured the enactment of a desirable law in 1910. The arguments for and against this measure advanced during the early months of the year differ little from those of previous years. On the one hand the banking interests opposed the measure on the ground that the 24,000 banks of the country rendered adequate service; that postal banks would cut into their deposits; that mutual savings banks are already developed in the industrial States; and that the best method of cultivating thrift is to extend the present system of such banks. There was considerable opposition also on the ground that the measure is socialistic and would lead to an extension of the activities of the national government. Stress was laid also on the administrative difficulties, especially that of investing the deposits. The chief contentions in favor of the measure were that the millions of foreigners in the country are distrustful of established banking institutions and accustomed to government savings banks; that in times of money panic the millions of dollars withdrawn from existing banks would be brought back into circulation through the postal savings banks, whose deposits are guaranteed by the government; and that the postal savings banks would form an important agency in the development of thrift. In connection with this latter argument it was pointed out that even in States like Massachusetts, where the savings banks are very well developed, there is abundant need of the postal banks. Thus in that State there were only 188 savings banks, but 900 post-offices. There are many small manufacturing villages, miles from any bank, but none without a post-office. In that State 91 per cent. of all the deposits of savings banks are credited to 25 per cent. of the depositors, showing apparently that the poorer depositors are reluctant to enter the elegant private institutions now existing.

**THE NEW LAW.** The bill as passed created a board of trustees composed of the Postmaster-General, the Secretary of the Treasury and the Attorney-General. The deposits of any one person are limited to \$100 a month or \$500 in all; an account may be opened with one dollar. Certificates of deposit are to be used in place of pass books; and stamps for small deposits. Two per cent. interest is to be paid. It is pro-

vided that deposits may be exchanged for two and a half per cent. government bonds in denominations of \$20, \$40, \$60, \$80, \$100 or multiples thereof and \$500 or multiples thereof. Special issues of such bonds are authorized. One of the knottiest problems was what should be done with the deposits. The feeling was very strong that the deposits should in some way be available for business purposes in the vicinity where originally deposited. It was declared that they should not be placed in national banks on account of the probability that they would be transferred to commercial centres to be used in speculation; and that they could not be deposited in local State banks without passing from the jurisdiction of the national government. In opposition to this it was held that farmers and others not now using any bank would deposit savings with the post-offices, which would then become available for loans through local banks. Moreover it was held that State banks should be available depositories because national banks cannot make loans on real estate. It was provided in the law that deposits should be transferred to national and State banks of the vicinity; these are required to pay 2¼ per cent. interest thereon, and to secure deposits by public bonds or other securities supported by the taxing power. Five per cent. of the deposits are to be held by the Secretary of the Treasury as a cash reserve. In case of emergency the government may withdraw 39 per cent. of the deposits for investment in government bonds yielding not less than 2¼ per cent. interest.

Congress appropriated only \$100,000 to cover all the expenses for the first year, including equipment, engraving and printing of forms, certificates and bonds, as well as clerk hire. On this account it was possible to establish the banks in a limited number of post-offices only. On October 22, the board of trustees designated one post-office in each of the forty-eight States and Territories. In December the post-masters from these offices were in Washington receiving detailed instructions as to the starting of the new undertaking. The postal banks to be opened on January 3, 1911, were located as follows: Bessemer, Ala.; Globe, Ariz.; Stuttgart, Ark.; Oroville, Cal.; Leadville, Colo.; Ansonia, Conn.; Dover, Del.; Key West, Fla.; Brunswick, Ga.; Cœur d'Alene, Idaho; Pekin, Ill.; Princeton, Ind.; Decorah, La.; Pittsburg, Kans.; Middleboro, Ky.; New Iberia, La.; Rumford, Me.; Frostburg, Md.; Norwood, Mass.; Houghton, Mich.; Bemidji, Minn.; Gulfport, Miss.; Carthage, Mo.; Anaconda, Mont.; Nebraska City, Neb.; Carson City, Nev.; Berlin, N. H.; Rutherford, N. J.; Raton, N. M.; Cohoes, N. Y.; Salisbury, N. C.; Wahpeton, N. D.; Ashtabula, Ohio; Guymon, Okla.; Klamath Falls, Ore.; Dubois, Pa.; Bristol, R. I.; Newberry, S. C.; Deadwood, S. D.; Johnson City, Tenn.; Port Arthur, Tex.; Provost, Utah; Montpelier, Vt.; Clifton Forge, Va.; Olympia, Wash.; Grafton, W. Va.; Manitowoc, Wis.; Laramie, Wyo.

The table at top of next page, from the report of the Comptroller of the Currency, shows statistics for savings banks throughout the world; dates are 1908-9. See also table under SAVINGS BANKS.

**POST-OFFICES.** See articles on countries and UNITED STATES.

**POST-MASTERS.** See CIVIL SERVICE.

Country	Number of depositors	Deposits	Average deposits
Austria	2,106,539	\$ 46,009,897	\$21.84
Belgium	2,290,114	148,791,369	64.97
Bulgaria	225,879	1,108,693	51.47
Finland	58,826	1,432,801	24.37
France	5,291,673	296,964,867	55.12
Hungary	684,299	18,803,992	27.48
Italy	4,948,311	288,134,905	58.23
Netherlands	1,462,815	64,475,800	44.08
Russia	1,934,034	138,393,895	71.56
Sweden	560,270	12,441,249	22.21
United Kingdom	11,404,568	801,006,750	70.24
Bahamas	2,297	153,918	67.01
Canada	147,458	42,848,025	290.52
British Guiana	13,608	411,360	30.23
Dutch Guiana	8,039	268,532	33.40
Curacao	8,250	62,143	16.04
British India	1,318,632	49,424,157	37.49
Ceylon	79,704	794,077	9.96
Straits Settlements	4,017	367,195	91.41
Federated Malay States	4,536	378,490	61.39
Dutch East Indies	71,214	3,073,705	43.16
Japan	8,815,436	53,070,016	6.02
Formosa	78,879	882,921	11.19
Cape of Good Hope	101,533	10,843,172	101.87
Gold Coast	1,747	100,620	57.59
Orange River Colony	6,826	807,679	118.32
Rhodesia	1,911	259,818	135.96
Sierra Leone	5,640	389,057	69.00
Transvaal	55,105	7,175,912	130.22
Egypt	86,728	1,986,755	22.91
Tunis	5,628	1,222,230	217.19
Western Australia	71,262	14,855,142	208.46
New Zealand	342,077	59,173,204	172.98
Philippine Islands	13,103	839,623	64.00
New South Wales	309,982	58,976,004	190.25
Victoria	532,425	68,625,972	128.89
Queensland	106,627	25,102,473	235.42
Tasmania	20,084	2,881,484	143.45
Total	43,180,903	2,227,927,502	51.59

**POTASH. See FERTILIZERS.**

**POTASSIUM. See ATOMIC WEIGHTS.**

**POTATOES.** The potato crop of the world in 1910 was a little below normal on account of dry weather in parts of North America and of heavy rain-fall in parts of Europe. In Germany, the leading potato-growing country of the world, the crop was attacked by diseases of the growing plant and by rot of the tuber as a result of excessive moisture. The yield of Prussia was estimated at 1,115,000,000 bushels, which was insufficient to bring the yield for the entire country up to the average production of  $1\frac{1}{4}$  billion bushels. The yield of potatoes in France was estimated at only 310,000,000 bushels as compared with a normal yield of 400,000,000 bushels. In consequence of the small crop the French government raised the embargo against American potatoes with the provision that only sound and clear-skinned tubers be admitted. In Belgium the potato crop was largely a failure and the yield did not meet the country's requirements. Great Britain produced approximately 130,000,000 bushels, which is generally exceeded. The potato crop of Ireland was reduced by a wet and cold season. A large proportion of the crop was small in size as a result of insufficiently high temperatures for the proper development of the tubers. In Hungary, which produced about 170,000,000 bushels, and in Russia with a yield of about 1,000,000,000 bushels the production was normal.

In the United States the potato crop of 1910 was reasonably satisfactory, the total yield being 338,811,000 bushels, as compared with 376,537,000 bushels in 1909. The total value of the yield as based upon the farm value per bushel on December 1st of each year fell from \$206,

545,000 in 1909 to \$187,985,000 in 1910. The area devoted to the crop this year was 3,591,000 acres against 3,525,000 acres the year before. The potato crop suffered much through an extended midsummer drouth in the north-western part of the Mississippi valley, but a partial recovery occurred when the breaking of the drouth was followed by a long favorable autumn. Short crops were produced in Iowa, Minnesota and North and South Dakota, while in the middle and eastern States good yields were secured. The New England States, chiefly Maine, produced a good crop, and Ohio, Pennsylvania, and New York, largely due to better cultivation, the rational use of fertilizers, and adequate rains during the later weeks the plants were growing, also obtained satisfactory yields, although the New York crop was 8,000,000 behind that of the year before. While the crop the country over was uneven in size it was generally sound and the tubers were smooth and presented a good appearance. In the drouth-stricken sections many small tubers were harvested. The yields in the more important potato-growing States were as follows: New York produced 44,676,000 bushels on 438,000 acres; Michigan, 35,175,000 bushels on 335,000 acres; Pennsylvania, 28,160,000 bushels on 320,000 acres; Maine 27,940,000 bushels on 127,000 acres; Wisconsin, 24,700,000 bushels on 260,000 acres, and Ohio, 14,924,000 bushels on 182,000 acres. The average yield per acre by States varied from 41 bushels in North Dakota to 220 bushels in Maine. The acre-yield was low in all the States west of the Mississippi and east of the Rocky Mountains, while in the New England and Pacific Coast States the average acre-yield was over 100 bushels.

**POULTRY. See AGRICULTURE; MEAT AND MEAT INSPECTION.**

**POWDER. See NAVAL PROGRESS.**

**POWER TRANSMISSION. See TRANSMISSION OF POWER.**

**PRAGMATISM. See PHILOSOPHY.**

**PRASEODYMIUM. See ATOMIC WEIGHTS.**

**PRATT, H. M. See LITERATURE, ENGLISH AND AMERICAN, Travel and Description.**

**PRATT INSTITUTE.** An institution of practical and technical knowledge in Brooklyn, N. Y., founded in 1887. The number of students in 1910 was 3773, while the instructors and teachers numbered 153. Among the changes in the faculty during the year were the resignation of Miss Edith Greer, director of the school of domestic science, and Arthur L. Williston, director of the school of science and technology. Samuel S. Edmands was appointed to the directorship of the school of science and technology, and the schools of domestic science and school of domestic arts were reorganized and combined, making the school of household science and arts, and Miss Isabel Ely Lord was appointed to the directorship of this school.

Edward F. Stevens was appointed librarian in place of Miss Lord, who had been the Institute librarian for a number of years. The productive funds of the institute amount to \$4,748,337 and the total income for the year was \$359,404, of which \$254,467 was from endowment and \$104,937 was from tuitions. The President is C. N. Pratt.

**PRECIOUS STONES. See MINERALOGY.**

**PREFERENCE. See CANADA, History**

**PRESBYTERIAN CHURCH IN THE UNITED STATES, often called the SOUTHERN**

**PRESBYTERIAN CHURCH.** A religious denomination organized as a separate body in 1861 as a result of the withdrawal of 47 presbyteries from the jurisdiction of the General Assembly of the Presbyterian Church in the United States of America, because of political action taken by the latter denomination which these presbyteries held that it was incompetent for a spiritual court to take. The denomination in 1910 numbered 281,920 communicants with 3217 churches and 1625 ministers. In the Sunday schools were 226,645 officers and teachers. It has 14 synods and 83 presbyteries. It sustains home and foreign missions and contributes liberally to educational purposes and to evangelical work among the negroes. The total annual contributions to all causes is \$3,500,000. The stated clerk is Rev. Thomas H. Law, and the next General Assembly of the denomination meets at Louisville, Ky., May 18, 1911.

**PRESBYTERIAN CHURCH IN THE UNITED STATES OF AMERICA.** A religious denomination which had its beginning as an organization in 1706, when the first presbytery was formed. Presbyterian congregations existed for many years previously, however, among them the congregation at Hempstead, N. Y., which was founded in 1644. The General Synod was established in 1716 and the first General Assembly met at Philadelphia in 1789.

According to the religious census made by the United States Census Bureau in 1906 and published in 1910, the total number of communicants in the denomination in 1906 was 1,179,566. There were 8185 church edifices and 7603 ministers. As compared with the census report for 1890 these figures show an increase of 391,823 communicants and 1223 organizations. Statistics gathered by officials of the denomination show the total number of communicants in 1910 as 1,339,000, with 10,011 churches and 9073 ministers. There were 37 synods and 293 presbyteries. The total contributions for all purposes throughout the year amounted to \$22,936,068, divided as follows: Home missions, \$1,479,271; foreign missions, \$1,311,413; education, \$149,437; Sunday school work, \$205,177; church erection, \$211,786; relief fund, \$172,988; freedmen, \$238,352; colleges, \$460,203; temperance, \$135,181; American Bible Society, \$22,900; General Assembly, etc., \$151,726; congregational, \$16,648,360; miscellaneous, \$1,777,074.

Foreign missions are carried on in nearly all the heathen lands. In 1910 there were 28 missions, 149 stations, 979 missionaries, 595 fully organized churches, 102,141 communicants, 1588 schools and 147 hospitals and dispensaries in which were 519,697 patients. Home missions are carried on in the whole of the United States, including Alaska and Porto Rico and also in Cuba. Mission schools are maintained among the Indians, Alaskans, Mormons, mountaineers and people of Porto Rico and Cuba. Among the institutions maintained whose titles sufficiently indicate their purpose are the Board of Home Missions, Board of Foreign Missions, Board of Education, Board of Publication and Sabbath School Work, Board of Church Erection and a Committee on Temperance. Under the auspices of the denomination are many universities and colleges, among them Princeton University and New York University. Theological seminaries are maintained at Princeton, N. J., Auburn, N. Y., Pittsburg, Pa., Walnut Hills and Cincinnati, O., Danville, Ky., Han-

over, Indiana, and San Francisco, Cal. There are theological departments also in several of the colleges under denominational control.

The real governing board of the denomination is the General Assembly. The 122nd General Assembly of the denomination was held at Atlantic City, N. J., beginning May 19, 1910. Among the important acts of the Assembly are the following: The consolidation of Home Missions, Church Erection and Board for Freedmen was recommended; it was declared that candidates shall not be admitted to the ministry unless their views are in harmony with the essential and necessary articles of the Confession. The action of the Presbytery of New York in ordaining two candidates against the strong opposition of a considerable minority was declared unwise. A historical statement of the relations of the Presbyterian Church and the Reformed Church in the United States was approved. The denomination was asked to raise, during five years, \$3,000,000 annually for the support of the colleges. The work of the Federal Council of the Churches of Christ in America was approved as was also the Laymen's Missionary Movement. A memorial service was held for the late John Stewart Kennedy. The consolidation of the smaller theological seminaries was considered. A plan of coöperation with the United Presbyterian Church was approved. The terms of union with the Welsh Presbyterian Church were reaffirmed. The officers of the General Assembly in 1910 were as follows: Moderator, Rev. Charles Little; Vice-Moderator, Charles L. Thompson; Stated Clerk, Rev. William Henry Roberts; Permanent Clerk, Rev. William Brown Noble; Assistant Clerk, Rev. James M. Hubert.

**PRESBYTERIANS, REFORMED.** See REFORMED PRESBYTERIANS.

**PRESERVATIVES.** See FOOD AND NUTRITION.

**PRESSURE TUNNELS.** See AQUEDUCTS.

**PREVENTION.** See PENOLOGY.

**PRÉVOST, MARCEL.** See FRENCH LITERATURE.

**PRICES.** The average level of commodity prices remained high during the year though there was some tendency toward decline. This high level was, in the view of many, the chief factor in producing a feeling of doubt and uncertainty in what were otherwise promising trade conditions. It was an important cause of the political upheaval of the year and a topic of general and scientific discussion. Bradstreet's price index, based on the wholesale prices of ninety-six articles, stood at 9.2310 on January 1; February 1, at 9.0730; March 1, at 9.1113; April 1, 9.1996; May 1, at 9.0385; June 1, 8.9105; July 1, 8.9246; August 1, 8.8222; September 1, 8.9519; October 1, 8.9267; November 1, 8.8666; December 1, 8.7844; January 1, 1911, 8.8361. The index for January 1, 1910, was the highest recorded in recent years; there was a decline of 4.2 per cent. for the year. That for January 1, 1911 was 6.9 per cent. above that for January 1, 1909; 6.5 per cent. above January 1, 1908; .9 per cent. less than January 1, 1907; 6 per cent. above January 1, 1906; 9.3 per cent. above January 1, 1905; 10.6 per cent. above January 1, 1904; 10.2 per cent. above January 1, 1900; and 56.7 per cent. above the minimum of July 1, 1896.

Among the articles which showed increased prices for the year were the following: barley, rye, beef in carcasses, mackerel, codfish, coffee,

peas, apples, cranberries, raisins, standard and cotton sheetings, bituminous coal, linseed oil, glass, turpentine, tar, and hay. Among the articles showing decreases were: wheat, corn, oats, flour, milk, pork and pork products, butter, cheese, sugar, tea, molasses, salt, rice, beans, potatoes, lemons, hides, leather, cotton, wool, hemp, flax, pig iron, steel billets, tinplates, steel beams, copper, lead, coke, petroleum, yellow pine, spruce timber, hops, rubber, tobacco, paper. Twenty articles moved upward during the year and sixty-one declined, while sixteen remained stationary.

**CAUSES.** As in the discussions of the preceding year the causes assigned for the high level of prices were numerous and varied. Among the causes mentioned were the unsound banking conditions; cold storage; speculation, both in commodities and in securities; over capitalization; trade-unions; shorter hours and increased wages of labor; the changing status of woman; pure food laws; fraudulent practices by retailers; increase in the number of retailers and the expenses of handling the retail trade; advertising; growth of population; bad distribution of the population; wasteful farming; unreasoning extravagance on the part of consumers; inordinate increases in government expenditures; the tariff; trusts; increase in gold production.

**SENATE COMMISSION.** The causes were investigated by two special commissions, one from the United States Senate under the chairmanship of Senator Lodge, and the other from the Massachusetts legislature. The former, consisting of eight Senators, brought in a majority and minority report; five Republicans signed the one and three Democrats the other. The majority found the chief causes of higher prices to be: increased cost of production of farm products; increased demand for farm products and food, due to the shifting of the population to the cities and to the great stream of immigrants who go to cities and mines instead of to the farms; reduced fertility of the soil; cold storage plants, which enable wholesalers to buy and sell to the best possible advantage; increased cost of retailing due to advertising and high profits needed by many small dealers; increase in the supply of money; higher standards of living. They declared that the tariff was "no material factor" for "the greatest advances have been made in commodities upon which the tariff has had little or no effect"; "the advance in prices during the past ten years appears to have no relation to tariff legislation." They did not find in industrial combinations an important cause. Also "labor unions have not been apparently a serious factor in contributing toward advancing prices." The minority said, "We find the three substantial causes for the advance in prices are: (1) The tariff; (2) trusts, combines, and monopolies; (3) increased money supply."

**MASSACHUSETTS COMMISSION.** This commission was appointed in February and reported May 1, in a volume of 752 pages. It found that "the primary cause of the world-wide advance of prices since 1897 is the increase of the gold supply." "The advance of prices in the United States has been accelerated greatly by the enormous waste of income" through military expenditures, extravagance, and wastage. Considerable influence was attributed to the effect of the shifting of the population to the cities and the exhaustion of natural resources. Neither

trusts, the tariff, nor trade unions "can be regarded as a direct and active cause of the recent increase in prices." Both of the public reports were regarded by the public as influenced more or less by the political bias and interests of those preparing them.

From the standpoint of economic theory the causes of increased prices may be classed under the two general heads of supply and demand. Since prices are merely the ratios of the value of gold to the values of other commodities, prices will be affected by any conditions affecting the supply or demand of gold or the supply or demand of other commodities. Under this classification the most obvious cause is the enormous increase in the supply of gold. The world's production rose from \$118,000,000 in 1890 to \$202,000,000 in 1896; to \$396,000,000 in 1899; to \$401,000,000 in 1906; and to \$454,000,000 in 1909 and in 1910. This great supply of the standard metal could not but cheapen it in relation to other things; as its value fell prices rose. This increase in gold production, due to the discovery of the cyanide process and the development of dredging in California, both methods greatly lessening the cost of extracting gold from what were previously unavailable sources, is the most reasonable explanation of the world-wide rise in price levels. Of almost equal generality is the increase in population and the concentration of people in cities. This has increased the numbers demanding to be clothed and fed, at the same time that the number of persons engaged in raising food products and raw materials has been relatively diminishing. Then in the United States the great expanse of virgin territory so long available has been taken up, and we have begun to pay the cost of the exploitative methods of farming which prevailed until recent years.

The rise of prices in the United States since 1897 has been about one-half more than in England; this can only be explained by factors peculiar to this country. Of such factors the tariff and the combinations fostered largely by the tariff are the most conspicuous. The first object of the tariff is to raise prices of the protected articles high enough to make possible their production in this country; consequently, so long as the tariff is retained, prices must be higher on all articles to which it applies than they would be without it. Then by keeping out foreign competition the tariff favors the formation of combinations, which seek to maintain a profitable price level. It was these relations of the tariff to the increased cost of living that were largely responsible for the defeat of the Republican party in the November elections. See **TARIFF**.

No doubt other causes have contributed to the result. Of especial importance appear the increased demand for goods due to higher standards of living and increased extravagance of expenditures. This latter is shown in the meteoric rise of the automobile industry and the increased importation of luxuries. Trade unions have certainly affected the prices of some things. Retail methods have affected many. See **FINANCIAL REVIEW**.

**PRIMARY ELECTIONS.** See **NOMINATION REFORM**.

**PRIMITIVE MAN.** See **ANTHROPOLOGY** AND **ETHNOLOGY**.

**PRINCE EDWARD ISLAND.** An insular province of Canada (since July 1, 1873). Cap-

ital, Charlottetown. Area 2184 square miles. Population (1901), 103,259. For details, see CANADA. The government consists of the Lieutenant-Governor, appointed by the Governor-General of Canada, the Executive Council (responsible ministry), and the unicameral Legislative Assembly of 30 elected members. In 1910, Lieutenant-Governor, Benjamin Rogers; Premier, Francis L. Hazard.

**PRINCETON UNIVERSITY.** An institution of higher learning at Princeton, N. J., founded in 1746. In the academic year 1910-1911 there was an attendance of 1442 students, divided as follows: Graduate students 141, students in the school of electrical engineering 8, seniors 246, juniors 311, sophomores 325, freshmen 345, students qualifying for regular standing 62, specials 6. The faculty and instructors numbered 174.

Most conspicuous of the events of the year was the retirement of Dr. Woodrow Wilson from the presidency of the university. He resigned on October 20, 1910, to accept the Democratic nomination for governor of New Jersey. See NEW JERSEY. The Hon. John Aikman Stewart, A. M., Senior Trustee, was on that date appointed President pro tempore. Members of the Board of Trustees elected in 1910 are Parker D. Handy, Esq., and Dr. J. M. T. Finney, life trustees; and John W. Barr, Jr., Esq., alumni trustees, to succeed John D. Davis, Esq., whose term had expired. On July 25, 1910, the faculty lost by death Dr. Samuel Ross Winans, professor of Greek and instructor in Sanskrit. The faculty has also lost by resignation Dr. Henry Bedinger Cornwall, professor of chemistry and mineralogy, who becomes professor emeritus; and Mr. Henry Nevius Van Dyke, since 1873 registrar of the university.

The elections to full professorships made in June, 1910, include Dr. William Foster, professor of chemistry; Dr. Roger Bruce Cash Johnson, professor of philosophy; Dr. Robert McNutt McElroy Edwards, professor of American history; Dr. Oswald Veblen, professor of mathematics; Dr. Rudolph Ernest Brinnow, professor of Semitic philology; and Dr. Frank Jewett Mather, Jr., Marquand professor of art and archaeology.

Holder Hall, the dormitory given by Mrs. Russell Sage, was completed in 1910 and furnishes accommodations for approximately 150 men; and another dormitory building which may be ultimately connected with the southerly side of Holder Hall, has been built, partly from memorial gifts of the classes of 1881 and 1885, and partly from the general funds of the university.

Plans for the graduate college (the residential hall for graduate students) have been completed and work will be begun in the spring of 1911. This group of buildings is to include the John R. Thompson graduate college; a memorial dining hall, the gift of Mr. William Cooper Procter; and the Cleveland memorial tower. They are to be located on the golf links, and it is expected that they will be completed by September, 1912. The future development of the graduate school on broad and enduring educational foundations seems secure, through the beneficence of the late Isaac C. Wyman, who has left to the graduate school his residuary estate of between two and three million dollars; and through the generosity of Mr.

William Cooper Procter, of Cincinnati, who has given \$500,000, part of his gift to be used for the memorial dining hall, and the greater part for the endowment of fellowships in the graduate school.

The equipment of the university has also been substantially increased by the endowment of a department of physical education.

The receipts for the year were: \$692,066.92, of which \$180,999.39 were from gifts. In addition there was received for endowment \$789,413.33. The total productive funds of the university amount to \$4,995,200.

**PRIOR, MELTON.** An English artist and war correspondent, died November 2, 1910. He was born in London and was educated in the schools of that city and in Boulogne. He began his career as a war correspondent in the Ashantee campaign in 1873, and in succession served as correspondent and artist through the Carlist rising in 1874, the Herzegovinian, Servian, Turkish, Kaffir, Basuto, Zulu, Boer and Russo-Japanese wars, the Egyptian campaign in 1882, the Sudan and Nile expedition, the Burmese war, the Venezuelan, Brazilian and Argentinian insurrections, the Jameson raid, the Matabele and Afriidi wars and the Creton insurrection. In all, he took part in 24 campaigns and revolutions. In 1875 he went to Athens with the Prince of Wales suite, and traveled with the King of Denmark's expedition through Iceland. He traveled through Canada with the Prince of Wales, now King George of England, in 1901, and through India, 1902. He accompanied the Somaliland expedition in 1903.

**PRISON CONGRESS.** See PENOLOGY.

**PRISON LABOR.** See PENOLOGY.

**PRITCHETT, CARR WALLER.** An American clergyman, educator and astronomer, died March 18, 1910. He was born in Henry County, Va., in 1823, and was mainly self-educated. In 1858-9 he was a special student of astronomy and mathematics in Cambridge, Mass. He entered the Methodist Episcopal ministry, but his main work was as teacher. To this he gave thirty years of his life. He helped organize Central College at Fayette, Mo., and was twice its president. He organized Pritchett College at Glasgow, Mo., in 1866, and was its president for seven years. From 1875 he devoted most of his time to astronomy. He was elected a fellow of the Royal Astronomical Society in 1879 for discoveries concerning the planet Jupiter. For several years he was in charge of the Morrison Astronomical Observatory at Pritchett College. He was the author of the *Publications of the Morrison Observatory*, No. 1 (1885), and contributed to reviews and magazines in the United States and Europe.

**PRIVATE SCHOOLS.** See EDUCATION IN THE UNITED STATES.

**PRIZE COURT.** See LONDON, DEDICATION OF.

**PROBATION.** See JUVENILE COURTS.

**PROFESSIONAL SCHOOLS.** See UNIVERSITIES AND COLLEGES.

**PROHIBITION.** The movement for the restriction of the liquor traffic in 1910 was not attended with such important results as in the two or three years previous. This was due partly to the fact that in the South, where the most active and efficient efforts have been made to restrict the selling of liquor, the areas which can be affected by further legislation are becoming limited. The advocates of restriction,

however, were not idle during the year, and in nearly every State of the Union efforts in some form were made to put bounds on the selling and manufacture of liquor.

Interesting historically was the election of a Democratic legislature in Maine which is pledged to resubmit to the people the question of constitutional prohibition which has been in force in that State since 1858. The chief local issue in the Democratic platform was the resubmission of the prohibition question, and it is practically certain that the people of the State will be given an opportunity to show their sentiment in 1911.

The important events relating to liquor legislation will be found in general treated in the political history of the various States. Early in the year a campaign was begun to secure a petition for a vote on the liquor question in Chicago, and a petition containing 74,805 names was filed, calling for a vote to make the city dry. The City Board of Election Commissioners in March, however, declared this petition invalid. The legislature of Texas in January passed a bill making the sale of liquors in no-license territory a felony, punishable by from three to five years in the penitentiary. In the same month the county supervisors ordered elections to be held under the county local option law in 26 "wet" counties and 10 "dry" counties of Michigan. An active campaign was carried on during February and March. In the election held in the early part of April, 20 counties voted "dry," making a net increase of 10 counties for no license in the State, and voting out of business 319 saloons and 6 breweries. In March a bill in the Kentucky legislature to extend the county unit law to all counties alike was defeated. Local option elections were held in Minnesota in the same month and the temperance forces made a net gain of 27 villages. For the first time in the history of the State more than half the towns voted "dry." The legislature of Maryland defeated the local option bill by a majority of 2. In April the largest number of no-license elections ever held in the State took place in Wisconsin, resulting in a net gain of about 25 communities for no license. In the same month 64 saloons were voted out of 21 towns and cities in South Dakota, making a large net gain of "dry" subdivisions in that State. In May the Supreme Court of Washington declared the county local option law operative in every county of the State, whether under township organization or not. In June the Supreme Court of the State sustained a law passed in 1909 prohibiting the sale of intoxicating liquors to Indians. In the same month the Supreme Court of Kansas handed down a decision declaring that a club cannot maintain lockers in which its members may keep liquors for their private use.

In September the Supreme Court of Michigan handed down a decision declaring that a druggist who sells to a confirmed drinker is guilty, even though he may have sold the liquor on a prescription. In the same month State elections held in various counties of Arkansas showed a majority against license of 23,102. The Kentucky Court of Appeals in September affirmed the action of the lower court declaring it illegal for railway companies to carry intoxicating liquors into local option territory.

In the November elections many important

questions relating to the regulation of liquor traffic were decided. Rural Newcastle county, Delaware, remained "wet" by a majority of 748 votes. The towns of Warren, Westery, Charleston and Portsmouth in Rhode Island voted license. Of 49 cities and towns in Washington voting under the local option law, 28 voted no license. These include the two seaport cities of Bellingham and Everett. The effort to secure a county local option law under the initiative in South Dakota failed. In New Hampshire 8 cities and 23 towns voted for license, and 3 cities and 201 towns voted against license. The vote against prohibition in Oklahoma resulted in the defeat of the liquor amendment by over 22,000 majority, and the effort to adopt a State-wide prohibitory amendment to the Constitution in Missouri was defeated by a majority of 200,000. A similar amendment to the Constitution of Florida was defeated by a majority of about 4600. The prohibition amendment to the Constitution of Oregon was defeated by a majority of 20,000, and as a result of the elections in this State, 15 counties are "dry" as against 21 in 1909. The method of regulating the liquor traffic in force in the various States on December 31, 1910, is shown in the following table taken from the *Anti-Saloon League Year Book*.

#### LICENSE STATES

State or Territory	Peculiarities of License Law
Dist. of Colum.	Licenses granted by commissioners.
Nevada	Licenses granted promiscuously.
New Jersey	Some territory "dry" under special acts
New Mexico	No license can be granted outside of incorporated towns.
Pennsylvania	Licenses granted by Court of Quarter Session.
Utah	Saloons are closed by local decree of councils and county boards.
Wyoming	No license can be granted outside of incorporated towns.

#### PROHIBITION STATES

Name of State	Form of Law.
Alabama	Statutory.
Georgia	Statutory.
Kansas	Constitutional.
Maine	Constitutional.
Mississippi	Statutory.
North Carolina	Statutory.
North Dakota	Constitutional.
Oklahoma	Constitutional.
Tennessee	Statutory.
Total	4 Constitutional, 5 Statutory.

#### LOCAL OPTION STATES

Name of State or Territory	Voting Units
Arizona	Rural County and Municipalities.
Arkansas	Municipalities.
California	County and Municipalities (1).
Colorado	Municipalities, Wards and Precincts.
Connecticut	Townships.

Delaware .....	Counties (2).
Florida .....	Counties and Municipalities.
Idaho .....	Counties.
Illinois .....	Townships, Municipalities and Precincts.
Indiana .....	Townships and Counties (3).
Iowa .....	Counties & Municipalities (4).
Kentucky .....	Rural Counties and Municipalities (5).
Louisiana .....	Parishes and Municipalities.
Maryland .....	Counties by special legislation (6).
Massachusetts .....	Municipalities and Townships.
Michigan .....	Counties.
Minnesota .....	Townships and Municipalities.
Missouri .....	Rural Counties and Municipalities (7).
Montana .....	Counties.
Nebraska .....	Municipalities and Townships.
New Hampshire .....	Townships and Cities.
New York .....	Rural Townships.
Ohio .....	Counties, Municipalities, Townships, City Residence Districts.
Oregon .....	Counties, Municipalities and Precincts.
Rhode Island .....	Townships.
South Carolina .....	Counties (8).
South Dakota .....	Municipalities and Precincts.
Texas .....	Counties and Precincts.
Vermont .....	Townships.
Virginia .....	Counties and Municipalities.
Washington .....	Rural Counties and Municipalities.
West Virginia .....	Counties & Municipalities (8).
Wisconsin .....	Townships, Municipalities and Residence Districts.
Totals .....	16 Counties; 4 Rural Counties; 20 Municipalities; 12 Townships; 4 Precincts; 2 Residence Districts.

## UNITED STATES WET AND DRY POPULATION

State or Territory	in "Dry" Territory	in "Wet" Territory	Population 1910
Alabama .....	2,138,093	.....	2,138,093
Arizona .....	45,000	159,354	204,354
Arkansas .....	1,433,449	141,000	1,574,449
California .....	450,000	1,927,549	2,377,549
Colorado .....	435,602	363,422	799,024
Connecticut .....	400,000	714,756	1,114,753
Delaware .....	80,200	122,122	202,322
Dist. of Col. ....	59,079	271,990	331,069
Florida .....	657,295	95,360	752,619
Georgia .....	2,609,121	.....	2,609,121
Idaho .....	255,000	70,594	325,594
Illinois .....	1,895,000	3,743,591	5,638,591
Indiana .....	1,884,300	816,576	2,700,876
Iowa .....	1,300,000	924,771	2,224,771
Kansas .....	1,690,949	.....	1,690,949
Kentucky .....	1,782,000	507,905	2,289,905
Louisiana .....	800,000	856,388	1,656,388
Maine .....	742,371	.....	742,371
Maryland .....	399,883	895,463	1,295,346
Massachusetts .....	1,161,589	2,204,827	3,366,416
Michigan .....	900,000	1,010,173	2,910,173
Minnesota .....	1,000,000	1,075,708	2,075,708
Mississippi .....	1,797,114	.....	1,797,114
Missouri .....	1,150,000	2,143,335	3,293,335
Montana .....	15,000	361,053	376,053
Nebraska .....	390,000	802,214	1,192,214
Nevada .....	8,000	73,875	81,875
N. Hampshire .....	230,000	200,572	430,572
New Jersey .....	50,000	2,487,167	2,537,167
New Mexico .....	25,000	302,301	327,301
New York .....	95,000	9,018,614	9,113,614
N. Carolina .....	2,206,287	.....	2,206,287
N. Dakota .....	577,056	.....	577,056
Ohio .....	2,650,000	2,117,121	4,767,121
Oklahoma .....	1,657,155	.....	1,657,155
Oregon .....	285,000	387,765	672,765
Pennsylvania .....	90,000	7,575,111	7,665,111
Rhode Island .....	15,023	527,587	542,610
S. Carolina .....	1,240,400	275,000	1,515,400
S. Dakota .....	400,000	183,888	583,888
Tennessee .....	2,184,789	.....	2,184,789
Texas .....	3,000,000	896,542	3,896,542
Utah .....	125,000	248,351	373,351
Vermont .....	279,994	75,962	355,956
Virginia .....	1,450,000	611,612	2,061,612
Washington .....	445,000	696,990	1,141,990
W. Virginia .....	725,246	495,873	1,221,119
Wisconsin .....	600,000	1,733,860	2,333,860
Wyoming .....	48,000	97,965	145,965
Totals .....	43,857,959	48,114,307	91,972,266

(1) Local option legislation is in hands of county supervisors. (2) Only "wet" county votes in November, 1910. (3) Townships option is by Remonstrance. (4) Iowa is under prohibition except where option is exercised under the Mulct Law. (5) County voting unit does not include cities of 2000 or more. (6) County option granted to certain counties by special legislation acts. (7) County voting unit does not include cities of 2500 or more. (8) By County Courts and City Councils.

The table at the top of next column, taken from the same source as the above, shows the relative "wet" and "dry" population in the different States on December 31, 1910.

**PROJECTILES.** See NAVAL PROGRESS.

**PROSTITUTION.** The report of the Page Commission and subsequent legislation dealing in part with the night court for women in New York City occasioned extended discussion of the proper methods of dealing with public prostitutes. A law was passed, effective September 1, providing separate night courts for men and for women; detention quarters in connection with the court, in which the young can be separated from the hardened; finger-print identification of prostitutes in order to determine the old offenders; medical examination to detect the presence of venereal diseases; enforced hospital treatment for a period of not more than one year, if diseased; less crowded

courtrooms; more and better probation officers, with salaries; and modification of cumulative sentence law, and the fining system, whereby the same woman may appear in court time after time, be fined and turned on the street again to ply her trade. While this bill was pending serious opposition was shown to it on the grounds that the presence of venereal disease was made a condition of conviction; that release from the enforced hospital treatment was to be determined by physical rather than moral cure; that these provisions led in Europe to the public licensing of prostitutes and to an increase in prostitution, and did not result in a decrease of venereal disease; and that women are punished for offenses in which men are at least equally guilty.

Those leading the campaign against the social evil looked upon this law as only a short step in the right direction. Other things to be accomplished included the abolition of the short term workhouse sentence; commitment for indefinite terms to institutions providing physical treatment, industrial, mental and moral training; and adequate punishment of all contributors to and profitors from prostitution, including venal policemen, procurers, professional bondsmen, cadets, politicians, saloonkeepers, and owners of property used; and the suppression of Rains law and other so-called hotels that thrive on this business.

By a decision of Justice Bischoff in the New York State Supreme Court, clause 79, of the Page law, providing for the medical examination of convicted prostitutes, was declared unconstitutional. The court held that this clause was entirely within the police powers of the State and that it was not class legislation, although it applied to only one sex. The decision of the court, therefore, rested upon a point of legal procedure, namely, that the "nature of the sentence, after conviction, is made to depend upon the report of a physical examination without the opportunity of a hearing upon the fact entering into the report." Since the court was thus bound by the report of an examining physician, the decision held that the convicted person was deprived of the benefit of due process of law, the accused having no opportunity to be heard on the facts stated in the report. Plans were at once laid for the securing of legislation providing for the medical inspection and treatment after commitment and their more general use of the Bedford Reformatory for Women, with an abolition of the custom of workhouse sentences. Moreover, the case was appealed.

**WHITE SLAVE TRAFFIC.** During the local political campaign in New York City in 1909 a great sensation was created by charges that Tammany Hall was in league with persons engaged in the white slave traffic. Governor Hughes in his annual message called attention to the gravity of the matter. There resulted the formation of a special grand jury, headed by John D. Rockefeller, Jr., for the purpose of investigating the traffic in Greater New York. From this there resulted a few arrests, but no extensive developments. Another result was to hasten the investigation into the subject already begun by the National Immigration Commission. The report of this Commission on the white slave trade was submitted to the Senate in December and ordered printed as a public document. This detailed the manner by which men and women entice girls from their homes, import them into the country in defiance of the immigration laws, and place them in various American cities. It shows that the police force of New York City, under General Bingham, had greatly reduced the profitability of prostitution, but with the deplorable effect of scattering the prostitutes through the apartment house and residence sections of the city. Likewise in Buffalo, which had at one time been a favorite port of entering for the victims from abroad, police action had greatly reduced the amount of traffic. The Commission concluded that there was no single monopolistic organization controlling the transportation of girls intended for this traffic from one country to another, but rather that there were two loose organizations, one French, the other Jewish. They estimated the average price of girl slaves when bought outright to be about \$500. The report recommended that agents be placed abroad in order more effectively to resist the importation of alien women; and that national authorities cooperate with the States in the suppression both of the trafficking from one locality to another and of the local vice in the larger cities.

On the basis of this report, Congressman Mann introduced a bill aimed at stamping out the traffic by means of the power of Congress to regulate interstate commerce. This bill makes it illegal to furnish transportation from

one State to another for any person engaged in this trade, or to assist any such person from one State to another. Punishment for violation is fixed at ten years' imprisonment and \$5000 fine. Alien women engaged in this traffic, and this is believed to include the majority, are to be deported; and alien traffickers are to be excluded, deported and punished according to circumstances. In the debate on this bill the opposition held that it was unconstitutional since the traffic is not interstate commerce; and also because the attempt of Congress to regulate morals is an invasion of the police powers reserved to the States. In answer to this the defenders of the bill pointed out that the Supreme Court in the lottery case had upheld the right of Congress not only to regulate but to prohibit a business in the interest of the public morals. Moreover, since the States are expressly prohibited from interfering in the transportation of women from one State to another, Congress is the only authority empowered to deal with this commerce. This bill was finally passed on June 25. On September 6, the first indictment under this act was returned by the Federal grand jury in Chicago. Mr. Edwin A. Sims, United States district-attorney at Chicago, who had been engaged in a special investigation of the subject, stated that literally thousands of girls from the country districts are entrapped in the cities in all parts of the country. He stated that ignorant and innocent country girls in search of employment in the city are preyed upon by various methods; and, once located in a prison house of prostitution, cut off from all means of communication with friends and so clothed that they dare not appear in the streets, they are helpless. He stated his estimate that "not fewer than 15,000 girls have been imported into this country in the last few years as white slaves." On this same point the record of the immigration commission had stated that "the numbers imported run well into the thousands each year." Yet Attorney Sims stated that the chief source of supply is not importation from abroad, but from the country into the city.

Investigation of the traffic in New York City was carried on by a Research Committee of the Committee of Fourteen organized in 1905. The report of this Committee, published in the summer, pointed out as a fundamental distinction necessary in any consideration of this subject the difference between the voluntary illegal association of the sexes which it termed the usual "demand and supply," and the real "business of prostitution" engaged in for profit and frequently controlled by persons holding others in involuntary confinement. It points out that the failure to secure effective enforcement of the law is very largely due to the lack of cooperation among the voluntary agencies organized for the prevention, repression, and remedy of the social evil. In the absence of a central committee, political pull and business interests work their will. The report shows the futility of attacking the evil in one form regardless of others. Thus a successful attack on disorderly houses resulted in scattering the evil through the tenement houses, the dance halls, the massage parlors and so-called hotels. The report lays down the proposition that "the laws which the community really desires it can secure, and the

exact degree of other enforcement which it really desires, it can also secure." While therefore, the direct responsibility for the traffic is laid to business interests and political expediency which combine to protect, perpetuate, and deliberately increase it, the entire body of citizens is indirectly responsible. Among the recommendations of the committee are publicity for all, the profit sharers, as well as the unfortunate women; the separation of recreation from vice; the coöperation of officials in prevention and repression; the abolition of fines for repeated offenses in lieu of imprisonment; a system of identification of old offenders; and the codification of laws respecting the social evil. Especially does the report urge the appointment of a centralizing committee, either public or private. The report concludes against the segregation of the social evil within districts defined by law and by police regulation; but it did not present adequate solutions of the extremely difficult problem of what to do with those inhabiting disorderly houses when the latter are suppressed.

The City Council of Chicago authorized the appointment of a committee of thirty citizens to investigate conditions in that city; to propose amendments to the law and means of enforcement; to centralize responsibility in dealing with the matter; and to create, educate and organize public sentiment in support of such measures. Such a commission, to be permanent and to serve without salary and to be appointed by the governor or mayor in New York was recommended by the New York Committee.

Maryland, Massachusetts, New York, New Jersey, Ohio, Oklahoma, Rhode Island, and Virginia passed laws dealing with one or another phase of this traffic.

Two Diplomatic Conferences on the White Slave trade were held in Paris in July, 1902, and April, 1910. The Conference of 1902, attended by delegates from fifteen countries, outlined elaborate investigations and made proposals for a number of international agreements. The report of what had been accomplished at the 1910 Conference showed relatively minor achievements. Laws punishing with imprisonment those enticing girls or women into prostitution were passed in France, Hungary, Norway and the United States. Several countries had organized central information bureaus and had instituted government control of employment bureaus and the examination into the past history of prostitutes. Some coöperations of private and public agencies have been secured, an international organization with headquarters in London has been organized and hundreds of private homes for young girls have been established.

**PROTEINS.** See FOOD AND NUTRITION.

#### PROTESTANT EPISCOPAL CHURCH.

A religious denomination which traces its descent as a member of the Anglican Communion through churches established in the American Colonies by the Church of England. The church in 1910 comprised in the United States 68 dioceses and 23 missionary districts, including those in Alaska and the insular possessions. There were also 11 foreign missionary districts. There were living on December 31, 1910, 105 bishops of the Protestant Episcopal Church, including 33 missionary bishops. During the year seven bishops were chosen. The Rev. Rogers Israel was elected bishop of Erie, and

five were appointed to newly created missionary districts, namely: Rev. George Allen Beecher, of Omaha, Neb., was appointed to be bishop of the missionary district of Kearney to succeed Bishop Graves; Rev. Theodore Payne Thurston to be bishop of Eastern Oklahoma; Rev. Francis L. H. Potts, to be bishop of Wu-hu, China; Rev. Louis Sanford, to be bishop of San Joaquin; Rev. Julius Walker Attwood, to be bishop of Arizona, and Rev. Edward A. Temple to be bishop of Northern Texas. Dr. Potts declined the election.

According to the religious census of the United States made in 1906 and published in 1910 the total number of Protestant Episcopal communicants reported in the former year was 886,942. The church edifices numbered 6922, and the clergymen, 5368. The value of church property was \$125,040,498. As compared with the census report for 1890 these figures show an increase of 354,892 communicants, 1827 organizations and \$43,821,381 in the value of church property. Statistics of the church are gathered yearly by the *Living Church Annual* and *Whittaker's Churchman's Almanac*. According to this authority, the communicants in the United States in 1910 numbered 928,780; the clergy, 5286; the scholars in the Sunday schools, 441,485; Sunday school teachers, 49,396. The increase of communicants over the preceding year was 19,005. The contributions from all sources during the year amounted to \$18,382,609. The statistics reported to the General Convention differ somewhat from those given above. The number of communicants reported to the Convention in 1910 was 937,861 and the clergy numbered 5513. The denomination maintains several theological institutions, a number of collegiate institutions, 114 academic institutions, 66 church hospitals, 62 orphan asylums, 77 homes, and 94 other institutions. Foreign missions of the church are carried on in West Africa, China, Japan, Mexico, Brazil, Isthmian Canal Zone, and Haiti. The denomination also has jurisdiction over certain American churches in Europe and charges a bishop with this oversight. Domestic missions are carried on throughout the United States and its possessions.

The General Triennial Convention of the denomination was held in Cincinnati October 8-21, 1910. Much important legislation was enacted at this session and many matters of general interest and importance were discussed. Perhaps the most interesting of these was the proposition to amend the title-page of the Prayer Book so as to eliminate the word Protestant and to substitute therefore a declaration of the catholicity of the church. This proposal was due to the action of certain prominent laymen and members of the clergy who held a joint conference previous to the convention to discuss the matter. At this conference the following preamble to the constitution of the church was agreed upon: "Amend the title-page to read as follows: 'The Book of Common Prayer and Administration of the Sacraments and other Rites and Ceremonies of the Holy Catholic Church.' According to the use of that portion thereof known as the Episcopal Church in the United States of America, together with the Psalter or Psalms of David." At the opening of the convention the matter was referred to the proper committee of which a majority reported against

the amendment. The debate before the convention occupied two days. When the vote was finally taken it was found that the proposition was defeated by a non-concurrence of the clerical and lay orders, divided dioceses being counted in the negative. The vote was: Clergy, yes, 42; no, 15; divided, 10; Laity, yes, 31; no, 24; divided, 8. It was plain that a large numerical majority of both houses favored the change, but by the system of voting by dioceses the proposition was lost. Perhaps the most important action taken by the Convention was the passage of a constitutional amendment creating suffragan bishops. An amendment was also adopted providing for the election of a presiding bishop who now holds office by seniority of consecration. The Convention resolved to appoint a joint commission "to bring about a conference for the consideration of questions of faith and order, and that all Christian communions throughout the world which confess our Lord Jesus Christ as God and Saviour, be asked to unite with us in arranging for and conducting such conference."

With regard to Canon 19, the so-called "Open Pulpit Canon," enacted at the General Convention of the denomination in 1907, the House of Bishops declared, in reply to a memorial presented by over 1100 of the clergy, that "the clause which restricts to the bishop the right to give permission to those who are not ministers in this church to make addresses in any of our pulpits on special occasions, was not intended to alter and cannot be fairly interpreted as in the least degree modifying the position of the church as expressed in the Common Prayer Book and Ordinal, which restricts the Ministry of the Word and Sacraments in our congregations to men who have received Episcopal ordination." The House of Bishops voted to forbid the remarriage of any divorced person whatever, even of the innocent party, but to this the House of Deputies refused to agree. The Convention refused to adopt a service for the unction of the sick. The Woman's Auxiliary United Triennial offering, which was a special gift from the women of the church for missions, amounted to \$242,110, a substantial gain over the offering of 1907. The proposition to authorize a racial episcopate, with especial reference to negro congregations was defeated by the House of Deputies.

The sessions of the Protestant Episcopal Church Congress for 1910 were held at Troy, N. Y. The following subjects were discussed: "The Individual and the Common Interest in Society," "The Teaching of the Old Testament to Children," "The Church of To-day as a Factor in Human Progress," "Architecture as an Expression of Religion," "The Formative Influence of a Democracy upon the Christian Church," "Revivals and Culture in Religion," and "The Moral Limits of Prayer."

Members of the denomination took an important part in the World's Missionary Conference at Edinburgh (see MISSIONS, PROTESTANT FOREIGN), and work was carried on under the auspices of the Layman's Missionary Movement. The next General Convention meets at New York City, October 8, 1913.

The Church of England in the Dominion of Canada in 1910 celebrated the bi-centennial of the founding of the Church of England in the Dominion. The service was held in the French Chapel of St. Anne at Halifax, and the events

included the dedication of the new edifice of All-Saints' Cathedral, on September 3.

For the social work carried on by the denomination see SOCIAL WORK OF THE CHURCHES.

**PRUSSIA.** See GERMANY.

**PSYCHICAL RESEARCH.** In *Studies in Spiritism*, the author, A. E. Tanner, reaches a negative conclusion regarding the alleged supernatural character of the trance-revelations discussed by the Society for Psychical Research. During six sittings with Mrs. Piper, the author, and G. S. Hall, carried out various rather crude experimental tests, most of which came to an uncertain issue. They believe with others that Mrs. Piper presents a case of secondary or divided personality. The book contains also general arraignment of spiritism. It is to be regretted that the stout assurance with which the author and Dr. Hall write is not more convincingly supported by their empirical evidence. That the persons interested in "research" do not consider the case against spiritism as closed, is made evident in a long and destructive criticism of the Tanner "Studies," written by J. H. Hyslop for the *Journal of the American Society for Psychical Research* (vol. v., p. 1). This review should be read in connection with the book. The examination undergone by Mme. Palladino while visiting this country (YEAB BOOK, 1909, p. 604), convicted the "medium" of using trickery and fraud and tended strongly to discredit her pretense to superhuman powers. The *Proceedings* of the Society for Psychical Research were occupied during the year with the report and interpretation of trance and other automatic writings. The president of the Society was H. A. Smith.

**PSYCHOLOGY.** In pure psychology the main centre of interest in 1910 continued to lie in the problems of intellection and will. The success of the experimental attack upon the more complex processes of mind has made a deep impression upon the science. New problems and new methods within this part of the psychological field have been springing up in abundance. Emphasis has shifted somewhat from thought to will. Doubtless the approach of psychology to common life, with its dominant interest in action, to criminology, and to the pathology of wish and desire, in the Freudian sense, has had something to do with this tendency. But it should also be pointed out that current psychology finds that the problems of thought and will are very closely related. One of the recent revelations of psychology is that thinking and doing depend less upon a special momentary form of consciousness than upon the "purpose" or "task" or "intent" under which these functions are carried out. Thought and volition, that is to say, are alike determined by conditions, mental and physiological, that extend backward through the history of the individual and of the race.

**MEETINGS AND GENERAL NEWS.** The annual conference of American experimentalists was held in Baltimore, April 19-21, at the laboratory of the Johns Hopkins University. A similar conference occurred at the same time in Innsbruck. The American Psychological Association met at Minneapolis and the Southern Society for Philosophy and Psychology at Chattanooga during the Christmas holidays. The New York State Teachers of Educational Psychology con-

vened for the first time at Ithaca, on April 8. *The Journal of Educational Psychology* completed its first year in 1910. It is a new and important resource to the science. An addition from another direction is the *Journal of Animal Behavior*, the first number of which is to appear in January, 1911. The magazine will be devoted to studies of animal behavior from the laboratory and from the field. Upon its appearance the *Journal of Comparative Neurology and Psychology* will discontinue its psychological articles and will devote itself entirely to neurological research. The neurological list for the year is unusually long. The following deaths are to be recorded: William James, John A. Bergström, Noah K. Davis, Paolo Mantegazza and Angelo Mosso. Twenty doctorates in psychology were conferred by American universities during 1910.

**GENERAL BOOKS AND TREATISES.** In *The Evolution of Mind*, J. McCabe has attempted to give, somewhat after the manner of Herbert Spencer, a synthetic account of the racial evolution of consciousness. To this end he has "sought aid in the whole relevant literature of Europe and America." He believes that the world is reducible to two orders of reality, ether and mind, and that it has undergone a twofold evolution, physical and mental. The author takes a conservative view of the distribution of mind among the lower forms of animal life. "The question to be answered is not, can we find any actions in a lower animal which are consistent with a theory of consciousness, but can we find any that are inconsistent with a purely neural action." Choice, purposiveness, and profit from experience are all found to be insufficient criteria of consciousness. The only reliable criterion is the structure of the brain. It is unnecessary to assume the existence of mind so long as the neuro-muscular apparatus can explain behavior. Fish and reptiles may possess a dim, vague consciousness; but there is no final proof that mind appeared before the Tertiary period, or below the higher vertebrate forms. Great changes of climate the author holds to be responsible for the animals that tended their young, that possessed heat-regulators and a bodily protection of hair, fur and feathers. With these creatures the evolution of consciousness progressed at a rapid rate. It is to be regretted that the author's psychological knowledge is not of the same order or range as his biology. He confuses consciousness with "intelligence" and "reason" and limits it quite arbitrarily to creatures with cerebral cortexes like our own. His view of the descent of mind rests upon the doubtful assumption that consciousness must have had some specific biological use and that its presence is to be denied wherever neural and muscular functions suffice for the maintenance of life. The rôle of consciousness in organic and social evolution was the subject of the presidential address of C. H. Judd of the American Psychological Association (*Psych. Rev.*, xvii, 77). Taking self-sufficiency or individual autonomy as the end toward which evolution moves, the speaker contended that "consciousness is a function which promotes self-sufficiency by literally taking up the environment into the individual and there remoulding the absorbed environment in conformity to individual needs." *The Revelation of Present Experience*, by E. Montgomery, seeks to derive a philosophical conception of the

world from the gradual development of the sensory-motor life of organisms. The second and last part of *A Text-book of Psychology*, by E. B. Titchener, appeared during the fall. Part ii includes chapters on perception, association, memory and imagination, action, emotion and thought. The systematic interpretation of recent work upon association, memory and judgment is the best to be found in textbooks. *A First Book in Psychology* (M. W. Calkins) is an elementary text which regards mind as a "self," sustaining relations with other selves and with external objects. The author questions the significance and the adequacy, and depreciates the abstractness, of a science of impersonal mental processes. The book is attractive and interesting in manner. The science and art of devising and administering "tests" of mental capacity were distinctly advanced during the year by the publication of a *Manual of Mental and Physical Tests* (G. M. Whipple). The manual contains instructions for the application of more than fifty tests. It will accomplish much for the critical use and standardization of methods throughout the world. The addresses delivered at the international conference of psychologists at Clark University (see *YEAR BOOK*, 1909, p. 604) have been printed in the *American Journal of Psychology* (April and July, 1910) and also published separately. The lectures contain the best material to be had in English upon psycho-analysis, the association-method, and the psychology of testimony. In a small volume of essays in appreciation, *The Qualities of Men*, J. Jastrow discusses human character and temperament and their expansion under nurlural influences.

**SENSATION AND PERCEPTION, Visual.** The poverty of classical and primitive languages in color names, especially names for green and blue, has for many years puzzled philologists and anthropologists. Gladstone concluded from his study of the Homeric poems that the color sense was poorly developed in the Greeks of the heroic age. Subsequent research has made it plain that the absence of color names, however, does not necessarily imply absence of the visual qualities concerned. R. S. Woodworth now suggests (*Psych. Bull.*, vii, 325) that the discrepancy is to be explained by the small need that primitive peoples experience of designating blue and green objects by color names. Differences between growing and ripe vegetation and changes in the appearance of the heavens, he admits, are indeed important, but they are adequately expressed by terms for fresh and dry, living and dead, clear and hazy, fair and overcast. On the other hand, the coloring of animals has led, so Woodworth thinks, to the practical importance and hence to the wide development of names for the reds and the yellows. "If cows had affected the blues and greens, the history of color vocabularies would probably have been quite different." It is also true, this writer continues, "that the most accessible and most used pigments are red and yellow, and the use of pigments might easily give rise to a variety of objects alike save in color and needing to be designated by reference to their color. With the introduction of green and blue paints and dyes, these colors became important marks in distinguishing household objects; and it is probably owing to the use of pigments that names for green and blue have become stereotyped in European languages."

**Auditory.** When two tuning forks are struck at the same time, certain accessory tones, "combinational tones," are sometimes produced. The pitch-relations of these combinational tones have of late been much in dispute. C. Stumpf, director of the Berlin laboratory, has gone over the whole subject and he finds (*Zeitschr. f. Psych.*, lv., 1) as a result of experiment that the pitch of the most important group of them may be expressed by the formulas,  $h-t$  and  $2t-h$ , where  $h$  stands for the rate of the higher fork and  $t$  for the rate of the lower. Stumpf refuses to accept Helmholtz's reference of these accessory tones to the movements of the drum-skin; though he contends, against Hermann (see YEAR BOOK, 1908, p. 602), that they are truly "subjective." They are probably conditioned both by processes within the ear and within the brain. In his *Studies in Melody* (*Psych. Rev., Psych. Monographs*, 50) W. V. D. Bingham sought in experiment the answer to the question "What is it that makes a sequence of tones melodic?" His results led him to the conclusion that unitariness is the fundamental attribute of melody and that it arises from motor adjustments and attitudes. "It is contributed," he says, "by act of the listener. When tone follows tone in such a manner that the hearer can react adequately to each, when the response to the successive members of the series is not a series of separate or conflicting acts but rather in each instance only a continuation or further elaboration of an act already going forward, then the tones are not felt as discrete, separate, independent, but as 'related' to each other. And when, finally, the series of tones comes to such a close that what has been a continuous act of response is also brought to definite completion, the balanced muscular 'resolution' gives rise to the feeling of finality, and the series is recognized as a unity, a whole, a melody."

**ACTION AND WILL.** *Ueber den Willensakt und das Temperament*, by N. Ach, is an experimental study of the "act" of will. In a previous work (1905), the same author had posited a neural factor, the "determining tendency," which serves to regulate thought and action and to direct consciousness toward a definite goal. Its acceptance by psychologists has helped toward a comprehension of the purposiveness and efficiency of action. It explains, for example, how it is possible for a person to continue at a given task long after the conscious resolution to perform the task has lapsed. In his present study, Ach attempts to ascertain by experimental means what power the will, once "determined," develops; in other words, how and to what degree the act of willing accomplishes its purpose. The "strength" of will is measured by the amount of resistance which is overcome. In the experiments, the observer read over and over a series of nonsense-syllables until the sight and sound of any given syllable tended to bring into consciousness the next following. Instead, however, of allowing the second syllable to enter consciousness, the observer was instructed either to think of a syllable that rhymed with the first or to transpose certain of its letters, thus making a new nonsense-word. His success in carrying out these instructions, (i. e., of suppressing the second syllable), taken together with the intensity of the reproductive tendency, measured the strength of the voluntary act. The suppression of a syllable when the series had been thoroughly learned by heart obviously required

a stronger "will" than suppression in a half-learned series and so on. The number of repetitions of a series which must not be exceeded if the voluntary suppression is to be carried out Ach calls "the associative equivalent of determination." Even where the serial association was not strong enough to destroy the intention to rhyme or transpose, it made itself felt in mistakes and in the delay of the voluntary act. In one case, the associative equivalent was found to lie between 100 and 120 repetitions distributed over nine or ten days of learning. The equivalent depends, of course, both upon the strength of the association (or the reproductive tendency) and upon the strength of the voluntary intention. This pioneer work upon action suggests new and important extensions of the reaction-experiment; it is, moreover, in line with much recent work upon thought. Ach's book has received a long and appreciative criticism by O. Selz (*Zeitschr. f. Psych.*, lvii, 241). Instead of the nonsense-syllables of Ach, H. S. Langfeld (*Psych. Bull.*, vii, 200) displayed to his observers small pictures, and he instructed them to suppress the name of the object shown each time and to answer with any other word that should occur to them. He found that during the course of the experiment, the suppression of the name—at first very difficult—became automatic. The result tends to show that a negative instruction may keep out of attention processes that would otherwise advance to the foreground of consciousness. It has an obvious bearing upon the question of the suppressed (*verdrängt*) complexes of the Freudian school. The differential of voluntary movement is thus stated by E. C. Rowe (*Amer. J. of Psych.*, xxi, 513): "voluntary movement is not a matter of initiation of movement nor a peculiar species of movement per se, but is essentially a form of control and in this respect alone differs primarily from other kinds of movement." The control is sensory, although imaginal processes also play a part. This view differs from the Wundtian conception that the *motive* makes the volition. Rowe discovered that the automatization of a voluntary movement passes through three successive stages: First, perceptual attention to details; secondly, the substitution of images for perceptions, the lowering of the attentive level, and the organization of a conscious "set" which carries the whole action; and thirdly, the elimination of everything but the "set" or *Aufgabe*. The whole process of degeneration may be observed in learning the use of the typewriter. *The Why of the Will*, by P. W. van Peyma, is a popular discussion of the determination of the will in action and thought. It appears to have been worked out by persistent reflection without much historical knowledge of the problems involved. The book is a plea for a form of determinism which would recognize the claims of the moral order and personal responsibility. Like most popular treatises that are self-consciously "scientific," its terminology is at times loose and inaccurate. The ethical tone of the book is wholesome.

**Instinct.** In July, a symposium upon "Instinct and Intelligence" was held in London, and the papers contributed were published in the *British Journal of Psychology* for October. These views of instinct were represented: (1) The terms under discussion are pure abstractions, relating to different aspects of the same mental process, not to different processes

(C. S. Myers). (2) Lloyd Morgan suggested a specific biological function of instinct which was conceived as "practically serviceable on the occasion of its first performance." (3) H. W. Carr defended M. Bergson's view that mind has developed in two very different directions; that instinct, which is an intuitional form of cognition, reaches its highest development in the insects, intelligence in man. (4) G. F. Stout distinguished instinct from the reflex, importing intelligence into the former state, which nevertheless remains congenitally determined. (5) By assuming the presence of "perceptual dispositions" in instincts, W. MacDougall went almost to the length of innate ideas. The symposium, while it betrays the British bias for "cognition," helped to clarify two terms which have long suffered from ambiguity of definition. An historical sketch of instinct from the time of the Greek philosophers is given in H. E. Ziegler's *Der Begriff des Instinktes einst und jetzt* (revised edition, 1910).

**Practice.** Flat stretches, "plateaus" as they are technically called, in the curve of practice have frequently been observed. The learner of a new language or of a skilled performance improves for a time and then either stands still or drops temporarily in proficiency, before further improvement appears in the function. E. J. Swift has suggested (*Psych. Bull.*, vii, 149) that the plateau is due to the fact that "the learner has reached his highest degree of efficiency with the material which the mind has already assimilated, and that further progress requires time for the automatization of new associations." The suggestion lends itself to experimental verification.

**ASSOCIATION, MEMORY, IMAGINATION AND THOUGHT.** The topic of associative learning was much discussed during the year. Methods of learning (i. e., of committing and reproducing series of words or objects) and the use in applied psychology of paired-associates (such as "horse-animal" "day-night") were the two problems most widely considered. A. von Sybel (*Zeitschr. f. Psych.*, liii, 257) had subjects of different-memory type (eye-minded, ear-minded, etc.) commit series of nonsense-syllables by visual reading, by hearing, by articulation, and by the combination of various sensory resources. He found a surprisingly small dependence upon memory-type: i. e., the amount learned was much alike for all learners, despite large differences in the observers' general command of imagery. In the second place, the work shows a tendency for learners to become less visual and more kinesthetic (movement of lips and tongue) with difficult series. This tendency may be related to the violent motor discharges incident to great effort. The validity of the associative law of similarity (one word or idea calling up a similar word or idea) has long been questioned. Peters (*Zeitschr. f. Psych.*, lvi, 161) concluded from wide inquiry, that similarity forms a real basis for reproduction and he explains the result as a "partial perseveration" (i. e., the common part of the ideas associated tends to rise to consciousness through a perseverative tendency), while the unlike part falls away because it is less practised. But it must be remembered that the term "similarity" may mean a great variety of things all of which must be taken into account by a theory of association. The subject needs further investigation. Among the several uses to which the

method of paired-associates may be put is the determination of the common or customary response which different individuals make when a given idea is presented. The "stimulus-word" is placed before, or called out to, the observer, who is asked to respond with the first word which suggests itself. G. H. Kent and A. J. Rosanoff reported (*Amer. J. of Insanity*, lxvii, 37) results from 1000 normal and about 250 insane observers. The normal persons gave many more common responses than the abnormals. Thus to the word "table," 267 normals responded with "chair," to "dark," 427 with "light" and 221 with "night;" while the responses of the insane were much more individual and scattering. The method promises to be of some service in the diagnosis of mental diseases. (Compare a similar study by F. Reinhold, *Zeitschr. f. Psych.*, liv, 183). The psychoanalysts make much of what they call the "complex;" i. e., a specific consciousness which issues from the concealment (either voluntary or unintended) of some fact or event. L. R. Geissler made an attempt to fathom the voluntary form of the complex (*Amer. J. of Psych.*, xxi, 597). The observer chose one of a pair of pictures or stories laid before him at the beginning of the experimental hour and afterward responded in the usual way to a list of words prepared by the experimenter. When a word that was connected associatively with the picture or story chosen called out a complex, the observer made the following introspective note. The complex "is a strongly unpleasant group of ideas (connected with the concealed object), reinforced by certain organic sensations, and characterized by a quick change from focal crowdedness through a momentary blankness to the dominance of a single focal idea."

**Imagination.** In an experimental study of imagination, G. W. Perky (*Amer. J. of Psych.*, xxi, 422) compared the image of imagination with that of memory and also with the perception. She found (1) that the memorial differs from the imaginative image in bodily movements which accompany it, in its peculiar mood of familiarity, in its temporal course, and in its high associativeness; (2) that under proper control (i. e., dimly illuminated figures thrown upon the screen of a dark-room) the imagination and the perception may be easily confused. This fact points to the ultimate likeness in the mental processes involved in perceiving and in imagining objects. The higher and more complicated forms of imagination still remain to be studied.

**Thought.** The largest contribution of the year to the subject of thought is W. B. Pillsbury's *The Psychology of Reasoning*. Reasoning has been treated almost exclusively as a logical problem. It is of the greatest importance, therefore, that a capable psychologist, who is, at the same time, familiar with current logical doctrines, should write a psychological treatise upon the more complex forms of intellection. The author makes a clear distinction between the "concrete individual consciousness" and the logical forms of thought as expressed in language. He lays stress upon the constant organization of consciousness in thinking and upon the "purpose" or "momentary mental set" as the factor which determines the ascription of meaning in the organized consciousness. One further conquest in the experimental psychology of thought is the methodical study of the "concept." In work

done at Leipzig and Berkeley (*The Process of Abstraction*; Univ. of Calif. Pub. in Psych., i, p. 73), T. V. Moore exposed series of geometrical figures, one set after another, instructing his observers to note the recurrence of any figure in the sets. The "abstraction" of the common figure represents the "abstraction" of common elements (as redness, tallness) which go to make up concepts. Over and above the attentive perception and the recognition of the abstracted figures, Moore found a specific mental process, the "concept," which is, he thinks, neither image nor feeling. F. Schwiete, who made use of the tachistoscope and the reaction-method in pursuing the same subject (*Arch. f. d. ges. Psych.*, xix, 475), characterizes the concept as "familiarity," plus either imagery, or an ideational constellation, or a "defining" procedure. Each of the factors is further resolvable. Schwiete carried his analysis further than did Moore. Still, the two researches are to a degree complementary, since one is based upon the use of objects and the other of words. In his study of the processes involved in learning the use of the typewriter, W. F. Book (*Psych. Rev.* xvii, 381) found, in agreement with a suggestion of Titchener's (*Thought Processes*, see YEAR BOOK, 1909, 604), that the conscious attitudes or *Bewusstseinslagen* become imageless, "non-sensory," only after a period of condensation and short-circuiting. He is inclined to posit a like history for the whole class of attitudes and imageless thoughts; namely, that they are genetically derived from, and may be traced back to, imaginal sources.

**Belief.** An experimental study of belief by T. Okabe (*Amer. J. of Psych.*, xxi, 563) revealed the fact that a true belief- or disbelief-consciousness is comparatively rare; that what we call belief is frequently a mechanical acceptance of fact or opinion. When true belief and disbelief were called out in the laboratory they were found—contrary to our accepted notions—not to be opposites but to inhere in one and the same kind of mental state.

**ANIMAL PSYCHOLOGY.** H. Piéron's new book on the evolution of memory (*L'évolution de la mémoire*) rests upon the thesis that mental development is continuous throughout animate nature. The phenomena of memory, he believes, may be traced down to the foot of the scale of living beings and even into inorganic substance. The book follows a fashion in current biology,—a fashion that encourages the drawing of superficial resemblances. It is of doubtful value to psychology. An explanatory psychology of the animal mind which draws upon innate ideas, psychical energy, and the universal mind, appeared from the pen of K. C. Schneider, a Viennese zoölogist (*Vorlesungen ueber Tierpsychologie*, October, 1909). The book is a counterblast to the mechanistic tendency of the physiologists. It adds but little to our knowledge of the consciousness of the animals; though it contains a good deal of clever argumentation.

**Imitation.** From his work with Manx cats, Berry (see YEAR BOOK, 1908, 604) was led to believe that it is through imitation, not instinct, that the average cat learns to kill and to eat mice. But subsequent experiments carried out upon younger kittens in the Harvard laboratory have failed to confirm this belief. Yerkes and Bloomfield write (*Psych. Bull.*, vii, 253): "we are inclined to believe that Berry's results would have led him to quite another conclusion

had he tested his Manx kittens at the age of one to two months in a cage which did not permit the mice readily to get out of sight or reach of the kittens." They themselves found that one kitten less than a month old and another less than two months old "without opportunity for imitation and without other experience with mice than that described above, began to kill and eat mice." They feel fully justified in calling it instinctive. At a later age, the instinct becomes increasingly difficult to evoke. "The practical inference is: allow a kitten to exercise its killing instinct when young if a good mouser is desired." J. P. Porter studied imitation in birds by allowing one that had first learned to open a puzzle-box to watch another go through the same performance (*Amer. J. of Psych.*, xxi, 1). He noted that in some cases the observing bird tended later to modify his movements in the direction of the other's performance. Porter finds what he calls "intelligent imitation" fairly common among birds. A novel test of learning in rats was devised by F. Richardson (*Psych. Rev.*, *Psych. Monographs*, 48) who taught both normal and blind rats to jump from one platform to another. Two blind rats learned to jump eleven inches, showing that the sensory control for such actions is not necessarily visual. To the student of the behavior of insects the new book of W. M. Wheeler's: *Ants; their Structure, Development and Behavior*, is of the first importance. The work includes chapters on sensation, habits, instincts and modifiable behavior. A. Forel, an author much more generous in his attribution of mental powers to insects, has added to his long list of works, *Das Sinnesleben der Insekten*. The book deals chiefly with Forel's own investigation into the sensory life of insects. The teaching and training of animals depend in large measure upon making the desired performance agreeable and lapses disagreeable or even painful. No one, however, has been able to say why an agreeable experience tends to be repeated and "stamped in" and a disagreeable experience avoided and "stamped out." S. J. Holmes (*J. of Comp. Neur. and Psych.*, xx, 145) adopts a suggestion of Hobhouse to the effect that the difference in motor organization may be responsible. If the response is "congruous" (as picking up and swallowing food), it is organized with the food-seeking movements and tends to be repeated. But if it is "incongruous" (as the rejection from the mouth of nauseating substances), there is no assimilation of motor impulses, and the result is subsequent inhibition of the food-taking movements. The hypothesis thus reduces to the principle of physiological facilitation and inhibition. It deserves an experimental test.

**PSYCHOLOGY OF SEX.** A competent review of recent literature on the psychology of sex (H. T. Woolley, *Psych. Bull.*, vii, 335) indicates that heritable mental characteristics are much less dependent upon sex than was formerly supposed; that the observed differences between the minds of men and women are largely owing to social and other environmental influences. The writer finds that current popular opinion tends to believe "that it is the highest duty of woman to refrain voluntarily from developing her own intellectual capacities for fear of injuring society—a form of asceticism to which it is hard to subscribe." E. L. Thorndike expresses the opinion (*Educational Psychology*, 2d ed., 1910) that the dominant position of the male in intel-

lect and action is due in part to social conditions, in part to his aggressive attitude, and in part, finally, to his greater variability to which is owing the preponderance among males both of idiocy and of unusual talent. New books that consider the social, pathological and educational problems of sex are: *Studies in the Psychology of Sex*, vol. 6 (H. Ellis), *Das sexuelle Problem und seine moderne Krise* (E. Mertens), and *The Sexual Life of Women* (E. H. Kisch). In a study of the handwriting of men and women, J. E. Downey (*Psych. Rev.*, xvii, 205) came to the conclusion that "it is possible to determine sex from handwriting in perhaps 80 cases out of a hundred." The "sex-sign," however, is largely influenced by practice, age and professional requirements; i. e., it is not a true "sex" character. Miss Downey used Binet's method of judging the sex of unknown persons from an examination of envelopes addressed by them.

**ABNORMAL.** In the report of a symposium, *Subconscious Phenomena*, Münsterberg, Ribot, Janet, Jastrow, Hart and Prince have distinguished six different meanings of the term "subconscious"; namely, marginal processes, dissociated ideas, secondary selves, potential memories, the subliminal reservoir, and purely neural functions. Of these the first and last are matters of fact; the others are attempts to explain various observations in normal and pathological psychology. The symposium serves to bring together and also to distinguish from one another clinical observation, introspection, medical and psychophysical theory, and mystical speculation. The first instalment of a compendious three-volume *Traité international de psychologie pathologique* written under the editorship of Marie, Bechterew, Clouston, Ziehen, and others appeared during the year. The work is designed to cover all branches of pathological psychology. I. H. Coriat's *Abnormal Psychology* is reviewed under *Psychotherapy*. The use of the associative reaction in the discovery of criminal knowledge voluntarily concealed was discussed in the 1909 YEAR BOOK. Further analysis of the conditions determining the time and the quality of the reaction has recently been made (*Amer. J. of Psych.*, xxi, 162). Twenty-six persons were, in one case, tested with the alternative-box method. But one error in fifty-three tests was made by the experimenter. The reaction-time for the "significant" words was found to be a safer clue than the nature of the response-word. But it also transpired that *irrelevant* words gave abnormally long times when (a) they aroused strong emotions or when (b) they were abstract or unusual in character. The longest single time given to a relevant word proved to be the best criterion of the concealed bit of knowledge. A. Binet insists (*L'année psychologique*, xvi, 372) that the success of the method depends in large measure upon the skill of the experimenter, while F. Ritterhaus denies (*J. f. Psych. u. Neur.*, xvi, 1) that its results can be made the basis for legal action.

**PSYCHOTHERAPY.** *Abnormal Psychology*, written by Dr. Coriat of the Boston City Hospital, treats of a group of functional disorders which includes hysteria, neurasthenia, and psychasthenia. The book interprets these disorders as the result of mental "dissociation." Dissociation means that the mind is disintegrated or "split"; that its normal coherence is dissolved, and that it has become, in part, at least, "subconscious." The problem presented to the

psychotherapist is the synthesis or reunion of the dissociated consciousness. The first part of the book discusses the phenomena of dissociation as revealed in sleep, dreams, hypnosis, automatic writing, and crystal-gazing; the second part describes the diseases of the subconscious. The work shows a closer acquaintance with clinical than with normal psychology. Dr. Coriat, who reflects the views of Janet in France and Prince in America, cites many interesting cases of mental abnormality. *Self Help and Self Cure* (E. Wilder and E. M. Taylor) is a "primer of psychotherapy." With no accurate knowledge of physiology, psychology or medicine the writers put together, not always judiciously, scraps of information and opinion from various sources. Exhortations to avoid fear, worry, and doubt, and to cultivate good habits are designed to help the "wayfarer" suffering from "functional diseases." Already psychotherapy is preyed upon by the innocent and ignorant enthusiast as well as by the quack. Both classes of "healers" ought to be restrained—by law, if necessary—from labeling their prescriptions, "the latest product of scientific knowledge." *Psychotherapeutics*, which has proved to be an extremely useful book, has been reissued within the year.

**PUBLIC DEBT.** See ARTICLES ON COUNTRIES.

**PUBLIC EDUCATION.** See UNIVERSITIES AND COLLEGES.

**PUBLIC HEALTH.** See HYGIENE.

**PUBLIC HEALTH ASSOCIATION.** A society founded in 1872 with the object of advancing sanitary science and the promotion of measures for the application of public hygiene. The work of the association is divided into four parts. At the meetings of the general association general subjects in relation to sanitary science are presented. The annual meeting in 1910 was held in Milwaukee. From a standpoint of general interest, probably the most important action taken at this meeting was the creation of a section on sociology. A "section" of the Association represents a group of members devoting its time and attention particularly to one branch of public hygiene, and the sociological section will demand the interest of those members who are especially interested in sociology in its relation to public health. In view of the growing importance of engineering in its relation to public health, the Association authorized, provisionally, the organization of a section on sanitary engineering. Provision was made at this meeting for the publication of a monthly journal, beginning January, 1911, to be known as *The Journal of the American Public Health Association*. The next meeting will be held in Havana, Cuba, December 4-9, 1911.

**PUBLIC LANDS.** See LANDS, PUBLIC.

**PUBLIC SCHOOLS.** See EDUCATION IN THE UNITED STATES.

**PUBLIC SERVICE COMMISSION.** See RAILWAYS; NEW JERSEY; NEW YORK.

**PUBLIC UTILITIES BOARD.** See RAILWAYS.

**PUBLICITY OF EXPENSES.** See CORRUPT PRACTICES.

**PUGILISM.** See BOXING.

**PUCCHINI, GIACOMO.** See MUSIC.

**PUGSLEY, WILLIAM.** See CANADA, *Government and History*.

**PULLMAN CAR DECISION.** See RAILWAYS.

**PUMPING MACHINERY.** An ingenious but simple application of the internal combus-

tion principle has been made in the successful construction of an apparatus for raising water known as the Humphrey gas pump. This was made public to the engineering profession so early as 1909, since which time it has been carried beyond the experimental stage and in 1910 the pump was being built in large sizes. In form it consists of two or more chambers that can be put into communication with the source of water supply as well as with the tank or reservoir or stand pipe into which the water is to be delivered by means of suitable valves. In one of these chambers, corresponding to the cylinder of a gas engine, a mixture of gas and air is exploded by means of an electric spark. Instead of forcing a piston down from the top of a cylinder, the explosive energy of the gas mixture acts directly on top of the water column that partly fills the chamber, and this enforced flow of water under pressure opens the discharge valve or valves, allowing a certain quantity of water to be delivered through a discharge pipe to the tank or standpipe. Having exerted its expansive energy, the charge of burnt gas is now compressed and driven out through the exhaust valves by the returning surge of the water. Next, as the water settles down in the intake chamber once more, the inlet valve opens and a fresh charge of gas and air is drawn in and ignited, and the cycle of operations is repeated. The inlet and exhaust valves for the gas are spring-operated, while the inlet and discharge valves for the water are opened and closed by the water pressure itself.

As a two cycle motor, it seems to be very efficient, one of the first pumps built, operating at a compression pressure of 50 lbs. per square inch, showing a thermal efficiency of 23 per cent.; and in those now building, using much higher pressures (162 lbs.), a somewhat higher factor should be attained, after certain details are perfected. In Germany, a 1000 horsepower pump was under construction; and in England one was ordered for a water supply system that must raise 180 million gallons of water 30 feet in 24 hours, using fuel gas for which the consumption of coal must not exceed 1.1 lbs. per pump horsepower per hour. For so large a quantity of water, there will be five units, one of 20, and four of 40 million gallons capacity each.

**ELECTRIC POWER PUMPING STATION.** In the city of Spokane, Wash., a pumping station was put in operation during the year that is notable for the use of electric motors driving centrifugal pumps, and also in supplying two pipe lines running through the city, the high pressure main being for fire service. The building is 74 feet x 51 feet, built of brick and steel on a concrete foundation put down on a grillage of timber resting in turn on piles, and all below low-water mark of the river on the bank of which the station is situated. Water pumped from this installation is drawn from wells, and the suction mains run to each one of three sets of single-end-suction, horizontal-shaft centrifugal pumps. Each set consists of a motor with a pump driven from each end of its shaft, with valves so arranged that either pump may draw water, one discharging into the low pressure main, and the other into the high pressure main; or the discharge from the low pressure pumps may be fed to the suction side of those on the high pressure side.

Each motor, rated at 900 horsepower, is a 3-

phaes, 60-cycle, 2300-volt machine running at 880 revolutions per minute, and of course driving the two pumps at the same speed. Motors and pumps were supplied by the Allis-Chalmers Company. Tests demonstrated that each unit, working both pumps on the low pressure main, was capable of furnishing 12 million (12,000,000) gallons every 24 hours against a 260-foot head. When connected in series, one pump discharging into the suction of the other, and thence to the high pressure main, each unit can supply  $7\frac{1}{2}$  million (7,500,000) gallons per 24 hours against a 430-foot head.

**PUMPING ENGINE FOR WHEELING.** During the year there was completed by the Allis-Chalmers company at their West Allis shops a vertical triple-expansion pumping engine for the city of Wheeling, West Virginia, which had a capacity of 20,000,000 of gallons daily. So far as power was concerned this new pumping engine equalled the largest engine ever built by these makers, which had been installed in the city of Nashville. It was of the vertical triple-expansion type with steam cylinders 42 inches, 74 inches and 110 inches in diameter and water plungers 33 inches in diameter. The low pressure cylinder was the largest cylinder ever employed for a pumping engine. The engine was designed for a steam pressure of 125 pounds and a vacuum of 27 inches. The stroke is 72 inches and the regular speed is  $18\frac{1}{2}$  revolutions per minute. There are two fly-wheels which weigh 90,000 pounds each. There is a surface condenser located in the by-pass of the discharge line of the pipe with cut-off valves on either side. The valve-gear consists of admission valves of the Corliss type for the high and intermediate cylinders and Corliss exhaust valves on the high pressure cylinder; while poppet valves are used for the exhaust of the intermediate and for both admission and exhaust of the low pressure cylinders.

**PURDUE UNIVERSITY.** An institution of higher learning at Lafayette, Ind., founded in 1874. During the year 1910 there were enrolled in the university 1859 students and the teaching staff numbered 149. Among the changes in the faculty during the year were the resignation of Dean Arthur L. Green from the school of pharmacy and the appointment in his place of Professor C. B. Jordan a graduate of the University of Michigan. There were no benefactions of special note during the year. The most notable event of the year in the history of the university was the completion and equipment of a large building for the department of practical mechanics, with shops and drawing rooms for all departments of engineering. The income for the year ending June 30, 1910, for all departments of the university, including specific appropriations for buildings, was \$650,218. The President is W. E. Stone.

**PURE FOOD.** See **FOOD AND NUTRITION.**

**PURE MILK SUPPLY.** See **DAIRYING.**

**PYGMIES.** See **ANTHROPOLOGY AND ETHNOLOGY.**

**QUAIFE, M. N.** See **LITERATURE, ENGLISH AND AMERICAN, Biography.**

**QUAKERS.** See **FRIENDS.**

**QUEBEC.** A province of Canada (since July 1, 1867). Capital, Quebec. Area, 351,872 square miles. Population (estimate 1910), 2,214,834. For details, see **CANADA.** The government consists of the Lieutenant-Governor, appointed by the Governor-General of Canada, the Executive

Council (responsible ministry), and the legislature of two houses, the Legislative Council (24 appointed members) and the Legislative Assembly (74 elected members). In 1910, Lieutenant-Governor, Sir Charles Alphonse P. Pelletier (appointed September 4, 1908); Premier, Sir Lomer Gouin.

**QUEENSLAND.** A state of the Australian Commonwealth. Capital, Brisbane. Area, 670,500 square miles. Estimated population, December 31, 1909, 578,548. For details, see AUSTRALIA. The executive authority is vested in a governor, appointed by the British Crown and acting through a responsible ministry. The legislative power devolves upon a parliament of two houses, the appointive Legislative Council and the elective Legislative Assembly. Governor in 1910, Sir William MacGregor; Premier, W. Kidston (from June 29, 1909).

**HISTORY.** Parliament was opened on July 12. The legislative programme included the construction of a main railway across western Queensland uniting the other systems. The policy of subdividing the great sheep stations was continued and the government announced that it would have opened up half a million acres within the next six months. In his budget in August the treasurer estimated the current revenue at £5,046,000 and expenditures at £5,038,000, reporting a flourishing condition in commerce and trade, and influx of large capital from the other states and from foreign countries.

**QUINCY, JOSIAH PHILLIPS.** An American lawyer and publicist, died October 31, 1910. He was born at Boston in 1829, the son of Josiah Quincy, the second mayor of Boston of that name, and the grandson of the first Mayor Quincy of Boston. He graduated from Harvard College in 1850 and afterwards studied law, being admitted to the bar in 1854. He did not, however, follow his profession. He moved to Quincy in 1859, where he conducted a large milk farm for several years. His life was devoted to scholarship and to the study of economic questions. He also wrote poems which were warmly commended. Among his published writings are: *Lyteria* (poem, 1854); *Charicles* (poems, 1856); *Protection of Majorities* (1876); *Double Taxation in Massachusetts* (1889); and *Unearned Increment* (1890), together with pamphlets and contributions to newspapers and magazines.

**RAABE, WILHELM.** A German novelist and writer, died in November, 1910. He was born at Eschershausen, Brunswick, in 1831. He began to write in 1856 under the pen name of Jakob Corvinus, and his first work, *Die Chronik der Sperlingsgasse* (1856), proved to be the most popular of all his writings. In 1905 it had reached its 41st edition. His books are distinguished by shrewd and original humor. On his 70th birthday, in 1901, the University of Göttingen honored him with a doctor's degree. Among his published writings are the following: *Ein Frühling* (1857); *Der heilige Born* (1861); *Unsere Herrgotts Kanzlei* (1862, 4th ed., 1901); *Der Hungerpastor* (1864, 4th ed., 1902); *Abu Telfau, oder die Heimkehr vom Mordeberge* (1867, 4th ed., 1901); *Der Schüdderump* (1870, 3d. ed., 1901); *Horacker* (1876), and *Die Gänse von Butzow* (1906).

**RABIES.** The Public Health Report of the Hygienic Laboratory of the U. S. Public Health and Marine Hospital Service for August, showed that for the year ending June 30th, 1910, sixty

patients were treated at the laboratory with antirabic inoculations. Fifty-seven of the patients completed the treatment and no deaths are known to have occurred among them. Of these sixty patients, forty-seven were actually bitten or scratched by the teeth of the animal; ten had scratches or wounds exposed to the saliva, or were exposed during laboratory manipulations. Fifty-five persons were bitten by dogs, three by cats, one by a cow, and one by a mule. Examinations show that fifty-four of the exposures were to actual rabies, as shown by the laboratory examination. In addition to the inoculations given at the laboratory, treatments were sent out to State Boards of Health. The transportation of antirabic virus, in the form of dried spinal cords preserved in glycerine, without appreciable loss of potency, has been found practicable. Nine hundred and fifty-one treatments were thus sent out to State Boards of Health.

Paltauf emphasizes a striking peculiarity of rabies; that is, whereas only a relatively small proportion of persons bitten by rabid animals developed the disease, yet once the disease does fully develop, it terminates inevitably in death. There is no known authentic case of recovery from fully developed rabies in man, although recovery has been observed in dogs. According to reliable statistics, rabies develops in less than 10 per cent. of all persons bitten by mad dogs and not receiving prophylactic treatment, and when it is considered that such highly contagious diseases as smallpox, plague, etc., have a large proportion of recoveries, it is remarkable that the incident of rabies is only 10 per cent., when its mortality is 100 per cent. The question arises, if less than one-tenth of those inoculated with the virus develop the disease, why should not many of the infected cases recover? Another remarkable fact is that, in the process of protective inoculation, when a living virus is injected, the infection has never been known to occur, although over one hundred thousand cases have been thus inoculated. Evidently the virus passed through rabbits is incapable of infecting man. Presumably, the virulence of the virus with which the individual is inoculated is the deciding factor in determining whether the disease will develop or not, for it has been observed that the bites of mad wolves give rise to rabies in about 60 per cent. of those bitten, as against 10 per cent. of fatalities from dog bites, and none from the sub-cutaneous injection of attenuated rabbit virus.

A timely and most excellent review of the subject will be found in Bulletin 65 of the Hygienic Laboratory, U. S. P. H. & M. H. S. It is written by A. M. Stimson and called "Facts and Problems of Rabies."

**RACING.** The racing interests experienced another disappointing year in 1910. The New York State legislature passed a law making the owners and directors of the various racing associations criminally liable for any betting and bookmaking on their premises. This, added to the restrictions placed upon the sport in preceding years, brought the racing season in New York to an abrupt close immediately after the end of the Saratoga meeting. The associations, however, are in hopes that the courts will uphold them in their contention that the 1910 legislation is ambiguous and they believe that racing soon will be revived. Although the season was necessarily a brief one the sport while

it lasted was high class. Two new American records were established. *Bubbling Water*, carrying 121 pounds, covered one mile 70 yards in 1 minute 42½ seconds; and *Everitt*, a three-year-old (107) excelled *Fitz Herbert's* record at 2 miles by running the distance in 3 minutes 25½ seconds.

*Novelty* was considered the leading two-year-old of the season, winning the Futurity, the Hopeful Stakes, the Rennselaer Handicap, and the Saratoga Special. *Dalmatian* made the best showing of the three-year-olds, capturing the Brooklyn Derby, Seagate Stakes, Iroquois Stakes, Yonkers Handicap, Empire City Handicap, and the Travers. *Fitz Herbert* won the Brooklyn Handicap.

S. C. Hildreth, the owner of *Novelty*, *Fitz Herbert*, and *Dalmatian*, headed the list of winning owners with a total of \$144,025. R. T. Wilson was second with \$65,795, and J. R. Keene third with \$54,215.

In trotting and pacing 1910 was remarkable for the large number of new records made. The most noteworthy achievement was the trotting of the mile by *Uhlan* in 1 minute 58¾ seconds. Other record performances were those of *Colorado E.*, a three-year-old, in trotting the mile in 2 minutes 4¾ seconds, and *Joan*, a four-year-old, in covering the same distance in the same time. *The Harvester*, a stallion, ran the mile in 2 minutes 1 second, and the two-mile in 4 minutes 15¼ seconds; *Native Belle*, a three-year-old filly, ran the mile in 2 minutes 6½ seconds, and *Minor Heir* paced the mile in 1 minute 59 seconds.

**RACQUETS AND COURT TENNIS.** The national Amateur Racquet championship tournament in singles was held at Boston on February 22. In the final round Quincy A. Shaw of Boston defeated Reginald Fincke of New York 17-14, 8-15, 15-2, 15-2. In the doubles event held at New York in January Lawrence Waterbury and Reginald Fincke defeated M. Barger and Payne Whitney 6-15, 17-14, 10-15, 15-6, 15-8, 15-12. G. C. Clark, Jr. won the Gold Racquet championship at Tuxedo Park, defeating H. F. McCormick, the defender of the title, 10-15, 15-6, 14-18, 15-13, 15-6. Jay Gould successfully defended his title as national amateur champion in court tennis by his defeat of Joshua Crane at Lakewood. The scores of the sets were: 6-2, 6-3, 6-1. The English amateur court tennis championship was retained by E. H. Miles, who defeated N. S. Lytton, challenger, by 3 sets to 1.

**RADIATION, ATOMIC THEORY OF.** See PHYSICS.

**RADIOACTIVE RECOIL.** See PHYSICS.

**RADIOACTIVITY.** See PHYSICS.

**RADIOLOGY AND ELECTRICITY,** INTERNATIONAL CONGRESS OF. See PHYSICS.

**RADIUM.** See PHOTOTHERAPY; PHYSICS; CHEMISTRY; ATOMIC WEIGHTS.

**RADIUM EMANATION.** See CHEMISTRY.

**RADIUM EXTRACTION.** See CHEMISTRY.

**RADIUM INSTITUTES.** See CHEMISTRY.

**RADIUM, COST OF.** See CHEMISTRY.

**RADIUM, MEDICINAL QUALITIES OF.** See CHEMISTRY.

**RADIUM, STANDARD OF MEASUREMENT OF.** See PHYSICS.

**RADIUM, USES OF.** See CHEMISTRY.

**RAILROAD LEGISLATION.** See RAILWAYS.

**RAILROAD RATES.** See RAILWAYS.

**RAILROAD REBATES.** See RAILWAYS.

**RAILROAD SECURITIES COMMISSION.** See RAILWAYS.

**RAILWAYS.** Following a twelve-month period comparatively free from harassing State and Federal legislation and marked by a generally satisfactory improvement in earnings, the railways of the United States began the year 1910 under most favorable conditions. Before six months had elapsed, however, Congress had passed an act amending and supplementing the Hepburn act of 1906 whereby the powers of the Federal government in regulating the activities of railways engaged in interstate commerce were greatly enlarged, trainmen in all parts of the country made demands for big increases in wages which had to be met in whole or in part, and earnings began to fall off in response to a general slackening in industrial and commercial lines.

On January 7 President Taft sent to Congress a special message recommending sweeping and radical legislation for the purpose of strengthening some parts of previous acts which had been nullified by decisions of the Supreme Court and giving the Interstate Commerce Commission wider authority in matters relating to rates and discriminatory practices of railways. After prolonged discussion in committee and on the floor of both Houses of Congress the Mann-Elkins act, in which were incorporated most of the President's recommendations, was passed on June 18.

**MANN-ELKINS ACT.** The main points of the new law are as follows:

(1) A Commerce Court is established with jurisdiction over: (a) Enforcement of Interstate Commerce Commission orders, except for penalties, criminal punishment, or collecting money. (b) Annuling or suspending commission's orders. (c) Commission's suits to correct illegal practices. (d) Suits to compel compliance with commission's orders. Five additional circuit judges appointed by the President for a term of five years constitute this court, which will sit in Washington.

(2) Judgments may be appealed to the Supreme Court and shall have precedence over all except criminal cases.

(3) Suits against the commission's orders shall be against the United States and the court shall decide whether or not the order is stayed.

(4) The Attorney-General of the United States has control of suits and may employ special counsel; the commission or anyone interested may intervene.

(5) Common carriers must designate an agent in Washington to accept service of notices sent out by the Interstate Commerce Commission.

(6) The provisions of the interstate commerce law are extended to include telegraph, telephone, and cable companies. The list of railway employes who may receive passes is enlarged and many details of the law respecting these points are strengthened.

(7) The provision of the interstate commerce law commonly known as the "long and short haul clause" is changed so as to leave the question of similarity of conditions to be decided by the commission. Rates reduced to meet water transportation rates cannot be increased without the commission's authority.

(8) The commission is authorized to reject tariffs with defective notices and the carrier is penalized by fines of from \$25 to \$500 per day

for non-compliance with orders. Penalties for false billing are revised and penalties are imposed for making fraudulent claims for damage to freight.

(9) The commission is authorized to suspend new tariffs for four months from date they go into effect and six months beyond if necessary for inquiry. The carrier must prove reasonableness of any proposed increase. The commission shall not compel through rates with street electric passenger railways nor compel a road to put a part of its line between two points into a through route.

(10) The commission is allowed to require annual reports as of December 31, instead of June 30, if it sees fit.

(11) The President is authorized to appoint a commission to investigate the propriety of Federal regulation of railroad stock and bond issues.

This new law went into effect on August 18, except the provision relating to suspension of tariffs pending inquiry as to their reasonableness which went into effect immediately with the passage of the act. Among the most important provisions of the bill as originally drawn but which were stricken out before its passage were the following:

(1) Authorizing agreements between carriers as to rates.

(2) Forbidding the purchase by one railroad of the stock of another. The appointment of a commission to study the propriety of Federal regulation of stock and bond issues was substituted for this.

(3) A provision for physical valuation of all railroads.

(4) Modification of the "commodities clause" to overcome the defects pointed out by the Supreme Court in its decision in the matter of the anthracite coal roads.

**FREIGHT RATES.** Shortly before the passage of the Mann-Elkins act, a number of the western roads announced large increases in freight rates to take effect on June 1. The Attorney-General thereupon brought an action in the Federal Court in Missouri praying for an injunction against putting into effect the increases proposed. A compromise was reached whereby the new tariff was not to go into effect until July 1; and immediately after the passage of the act the Interstate Commerce Commission under the power conferred upon it by the new law suspended the new tariffs pending an inquiry as to their reasonableness. Other roads in the East filed increases in freight rates which were likewise suspended by the commission and early in September concurrent hearings were begun in New York and Chicago. The railroads presented evidence purporting to show the necessity for the advance in rates owing to the increased cost of materials and the higher wages paid to employees as the result of the settlement of threatened strikes earlier in the year. In December the commission held a series of hearings in Washington at which time Louis D. Brandeis, counsel for several associations of shippers, made the startling claim that the railroads of the country could save \$1,000,000 a day by the introduction of the efficient methods which had been developed by manufacturing companies. Up to the end of the year the commission had not announced its decision on the increases in rates asked by the railroads.

In May all the railroads entering New York City announced increases in their commutation and family ticket rates to suburban towns amounting to between 5 and 40 per cent. It was claimed that the old rates were unprofitable and that the increase barely compensated for the increases in wages granted about the same time to trainmen. Appeals were taken to the Interstate Commerce Commission and the Public Service Commissions of New York and New Jersey but without result and the increased rates were allowed to stand.

President Taft in December appointed as members of the new Commerce Court Martin A. Knapp, former chairman of the Interstate Commerce Commission, as presiding judge, R. W. Archbald, W. H. Hunt, John E. Carland, and J. W. Mack as associate judges. The Railroad Securities Commission appointed by the President in September consists of A. T. Hadley, president of Yale University, chairman; F. N. Judson, Frederick Straus, Walter L. Fisher, and Prof. B. N. Meyer. This commission began holding hearings in New York early in December but had made no report up to the end of the year.

**LEGISLATION.** Other laws passed by Congress and directly affecting railroads included an amendment to the act for expediting cases arising under the Sherman anti-trust law and the Interstate Commerce act; an amendment to the employers' liability law; a law requiring common carriers to make monthly reports of accidents to the commission and giving the commission full authority to investigate accidents; a law requiring the commission to designate the number, dimensions, location, and manner of application of safety devices used on equipment, the act to go into effect as regards new cars on July 1, 1911.

**STATE LEGISLATION.** State legislation affecting railways was not so general or drastic as in previous years. In New Jersey a Public Utilities Board to replace the old railroad commission was created by the legislature. It has jurisdiction over all public utility companies in the State. The new board does not have power to make or change rates but it is given wide authority over the issue of securities and all of its orders are subjected to review by the courts. A Public Service Commission was also established in Maryland, the provisions of the act creating it being very similar to the New Jersey law with the exception that the Maryland Commission has the power to determine the rates charged by public utility companies. In Ohio a bill enlarging the powers of the railroad commission was defeated.

**COURT DECISIONS.** There were few important decisions relating to railways handed down by the Supreme Court in 1910. In the Missouri River rate case the court upheld the ruling of the Interstate Commerce Commission requiring a reduction in first-class rates on shipments from the Atlantic seaboard to points west of the Missouri River. The court held that in the absence of proof to the contrary the order of the commission presumably was reasonable and would not be reviewed. The court also upheld the commission in the case of the commission against the Illinois Central Railroad involving the question of distribution of coal cars to shippers. The language of the court in this latter case was such as to lead to the presumption that it would not interfere with any

orders of the commission unless they were in effect confiscatory.

**INTERSTATE COMMERCE COMMISSION.** The year 1910 was an active one for the Interstate Commerce Commission. In addition to considering evidence on the rate increases asked by the railways, which occupied much of the commission's time during the last half of the year, it disposed of 817 formal complaints on its docket and 871 new cases were filed for future consideration. For criminal violations of the interstate commerce laws 44 new indictments were returned and 43 prosecutions were concluded. Aggregate fines of \$63,500 were imposed against 41 defendants found guilty. The commission says in its annual report for 1910: "The fight against discrimination is by no means won. Those practices still remaining are more insidious and more difficult of extirpation than open rebating. Certain divisions with terminal railroads, payments for the use of plant facilities, payments to shippers for performing for themselves services not incumbent upon the carrier, arrangements with private car lines and the ownership of industrial corporations by carrier corporations and the ownership of carrier corporations by industrial corporations are the more prominent and lawful examples of the abuses now continuing."

The decision against the Pullman Company was of the most general interest of any case considered by the commission. In April the commission held that the sleeping car rates charged by the Pullman Company between points in the Northwest were unreasonable and ordered the company to establish a differential between upper and lower berth rates. The Pullman Company appealed to the courts, but when the hearing was called it announced that it had decided to make substantial reductions in all lower berth rates and also that it would charge about 20 per cent less for upper berths than for lower berths. The reduction it is estimated will amount to nearly \$1,600,000 annually. The commission also ordered reductions of nearly 20 per cent. in the freight rates between the Missouri River and Seattle, Salt Lake City, and other western points.

**STRIKES AND WAGE INCREASES.** The year 1910 opened with a strike of switchmen in progress in the Northwest which was quickly and decisively won by the railways. On July 18 a strike of conductors, brakemen, and yardmen was declared on the Grand Trunk Railroad but it was ended with concessions by both sides early in August. Several other strikes were seriously threatened, but all trouble was peaceably settled by arbitration. The trainmen on several Eastern roads demanded standardization of wages in accord with those paid by the Pennsylvania Railroad which are the highest of any railway in the country. In general these demands were met. In the West the Brotherhood of Locomotive Engineers sought very large increases from 61 roads. Their demands were refused and a strike vote was taken but the matter was finally referred to arbitration and an average advance of 10 per cent. was granted. Railroad wages are now higher than ever before.

**RAILWAY EARNINGS AND EXPENSES.** The increases in wages were made for the most part late in the spring and the results in increased operating expenses did not show in the returns for the fiscal year ended June 30. Up to July 1 the railroads had enjoyed a prosperous year

and their earnings both gross and net were the largest ever reported, exceeding even the record figures of 1907. The returns to the Interstate Commerce Commission for the fiscal year 1910, showed gross earnings from operation of \$2,787,266,136 and operating expenses of \$1,847,189,773 as compared with gross earnings in 1909 of \$2,444,694,668 and operating expenses of \$1,616,571,846. During the last half of the year gross earnings fell off somewhat and the large wage increases, coupled with increased cost of supplies, lowered net earnings even more sharply. Railroads ceased buying all supplies except those most urgently needed, and pending a decision on the freight rate increases work was stopped on many improvements and extensions. The year closed with improvement work at a standstill and with little prospect of resumption until something definite was learned as to the possibility of increasing earnings through charging higher rates.

**RECEIVERSHIPS AND FORECLOSURE SALES.** The falling off in earnings during the last half of the year did not involve any important roads in serious financial difficulties and only seven properties with a total mileage of 735 and total liabilities of \$51,427,500 were placed in the receivers' hands. Of these the Buffalo & Susquehanna Railway with 361 miles of track and \$31,668,000 of liabilities was the largest system. Eighteen roads with an aggregate of 1100 miles of track and \$93,660,109 of stock and funded debt were sold at foreclosure sale. Most of the roads which were thrown into receivers' hands in 1907 and 1908 have now been reorganized and are out of difficulty.

**RAILWAY FINANCING.** The year was a poor one for floating large issues of securities. Legislation, wage advances, and the uncertainty over the possibility of rate increases impaired the credit of railways generally and this, coupled with a stagnant market and a demand from investors for high interest rates prevented the successful sale of securities. Early in the year several large issues were sold abroad. Among these were \$50,000,000 of 4 per cent. debenture bonds of the Chicago, Milwaukee & St. Paul and \$10,000,000 of 4 per cent. debenture bonds of the Cleveland, Cincinnati, Chicago & St. Louis. The aggregate of new railway securities sold during the year was close to \$950,000,000 as compared with \$1,100,000,000 sold in 1909.

Few significant changes were made in dividend rates during the year. The Canadian Pacific advanced its regular dividend rate from 6 per cent. to 7 per cent. and also declared an extra dividend of 1 per cent. The Chesapeake & Ohio increased its rate from 3 per cent. to 5 per cent. and a dividend of 4 per cent. on the common stock of the Cleveland, Cincinnati, Chicago & St. Louis was declared. There were no important reductions in dividend rates.

**CHANGES IN OWNERSHIP AND MANAGEMENT.** The number and importance of changes in railway ownership and control during the year was less than in 1909. The Chesapeake & Ohio, controlled by Edwin Hawley, acquired the Hocking Valley and the Kanawha & Michigan, giving it an entrance into Toledo, and it also bought the Chicago, Cincinnati & Louisville, which gives it an entrance into Chicago. Phelps Dodge & Company purchased the securities of the Chicago, Rock Island & Pacific which the Pearson-Farquhar syndicate, composed of Englishmen, was forced to sell after a sharp drop in the market.



**MAIN WAITING ROOM**



**CONCOURSE SHOWING TRAIN GATES AND INDICATORS**

**PENNSYLVANIA STATION, NEW YORK CITY**

0740

Marvin Hughitt retired as president of the Chicago & Northwestern and was succeeded by William A. Gardner, vice-president of the company. Lucius Tuttle resigned as president of the Boston & Maine following the passing of control of this road to the New York, New Haven & Hartford. J. T. Harahan retired as president of the Illinois Central and Daniel Willard of the Chicago, Burlington & Quincy succeeded Oscar G. Murray as president of the Baltimore & Ohio.

**RAILWAY CONSTRUCTION.** The new railway track built in 1910 exceeded the mileage built in 1909 by about 10 per cent., although few new projects were started. Statistics compiled by the *Railway Age Gazette* show that 4122 miles of main line track were built during the calendar year as compared with 3748 miles built in 1909. The longest single piece of construction was 160 miles between Lubbock and Coleman, Tex., which is part of a cut-off 310 miles long which the Atchison, Topeka and Santa Fé is building between Coleman, Tex., and Texico, N. Mex. The Chicago, Milwaukee & Puget Sound built 421 miles in the four States of Idaho, Washington, North Dakota, and South Dakota. In Canada work was pushed on both the eastern and western ends of the Grand Trunk Pacific and 772 miles were completed. Other Canadian roads were also active in construction work and the total for the northern half of the continent was 1844 miles as compared with 1488 miles in 1909. The total mileage of steam railways in the United States reporting to the Interstate Commerce Commission for fiscal year ended June 30, 1910, was 239,652 as compared with 233,902 miles in 1909.

The railways of the world according to statistics compiled by the *Archiv für Eisenbahnen* had an aggregate mileage of 611,478 at the end of 1908 divided by continents as follows:

Europe, 202,109; Asia, 58,813; Africa, 19,211; North America, 274,372; South America, 39,013; Australasia, 17,960.

A total of 16,445 miles were built in 1908 and the increase since 1904 was 61,505 miles. The total capital invested in the world's railways is estimated at \$51,184,000,000.

**ELECTRIFICATION.** The most important event in heavy electric traction during 1910 was the completion and commencement of electric operation of the Pennsylvania tunnels under New York City. The terminal station at Seventh Avenue and Thirty-third Street and the tubes under the East River were opened for trains of the Long Island Railroad on September 8, and on November 27 all Pennsylvania Railroad through trains from South and West were operated into the new station. The New York Central extended its suburban electric zone 12 miles north on the Harlem Division to White Plains and on the Hudson River Division to Yonkers. Active construction work was begun in October on the electrification of the Hoosac Tunnel on the Fitchburg Division of the Boston & Maine. This tunnel is one of the longest in the world and great trouble has been experienced in operating trains through it hauled by steam locomotives. The single-phase alternating current system using an overhead wire conductor has been adopted for the tunnel work. The tunnel of the Michigan Central under Detroit River was opened for traffic early in December. It is used both for freight and passenger trains, which are hauled by direct current locomotives.

In March a disastrous snow slide in the Cascade Mountains near Willington carried away four of the six electric locomotives used by the Great Northern in hauling trains through the Cascade Tunnel. The overhead wires were broken down and the locomotives were buried under tons of snow and rock. They were not seriously damaged, however, and were raised and repaired in a few weeks. Electric operation was not resumed until early in the summer. See **ELECTRIC RAILWAYS.**

**CAR AND LOCOMOTIVE BUILDING.** Late in 1909 the railways ordered large numbers of cars and locomotives in anticipation of heavy traffic to be handled in 1910 and these orders kept the builders busy during the first half of the year. Following the wage increases in the early spring and the uncertainty as to the future as the result of the passage of the Mann-Elkins act, the railways ceased ordering new equipment and by the end of the year the output of the car and locomotive builders had dropped to very low figures. On the whole, however, the output compared favorably with the average of recent years. Statistics compiled by the *Railway Age Gazette* show that 50 car builders in the United States and Canada built 180,945 freight cars and 4412 passenger cars, or a total of 185,357 cars as compared with 96,419 cars in 1909. The following table shows the number of cars built in each year since 1905:

Year	Freight	Pass.	Total
1905 .....	165,155	2,551	168,006
1906 .....	240,503	3,167	243,670
1907 .....	224,188	5,457	229,645
1908 .....	76,555	1,716	78,271
1909 .....	93,570	2,849	96,419
1910 .....	180,945	4,412	185,357

Returns from 12 locomotive builders in the United States and Canada show a total of 4529 locomotives built during the year as compared with 2387 built in 1909. The output by years since 1905 has been as follows:

Year.	No.	Year	No
1905 .....	5,491	1908 .....	2,342
1906 .....	6,952	1909 .....	2,887
1907 .....	7,362	1910 .....	4,755

**BLOCK SIGNALS.** Nearly 6000 miles of track were equipped with block signals of some kind during 1910 bringing the total up to 69,311 miles. Of this total, 17,365 miles are protected with automatic block signals.

**RAILWAY ACCIDENTS.** The reports of railway accidents compiled by the Interstate Commerce Commission for the year ended June 30, 1910, show a large increase over 1909. The total casualties were 80,178 including 3804 deaths and 82,374 injuries. The increased casualties were from all causes but the largest increase was under the classification "other causes" which includes deaths and injuries to trespassers. The detail record for 1909 and 1910 is given at top of page 622.

**MONORAIL.** The gyroscopic monorail car brought out in Great Britain in 1909 by Louis Brennan, the inventor, attracted wide attention but no monorailways employing this principle were built or actively projected in 1910. In the United States one experimental monorailway 3 miles long was built in the suburbs of New York City connecting Bartow and City Island. On

	1910		1909	
	Killed.	Injured	Killed.	Injured
<b>Passengers.</b>				
In train accidents.....	217	7,516	131	5,865
Other causes.....	204	6,240	204	6,251
<b>Total.....</b>	<b>421</b>	<b>13,756</b>	<b>335</b>	<b>12,116</b>
<b>Employees.</b>				
In train accidents.....	715	6,791	520	4,877
In coupling accidents.....	206	2,985	161	2,353
Overhead constructions.....	96	1,377	76	1,229
Falling off cars, etc.....	586	13,196	481	10,259
Other causes.....	1,880	44,269	1,218	33,086
<b>Total.....</b>	<b>3,383</b>	<b>68,618</b>	<b>1,936</b>	<b>46,927</b>
<b>Total passengers and employees.....</b>	<b>3,804</b>	<b>82,374</b>	<b>2,791</b>	<b>63,920</b>

the first public trip on July 17, the car was derailed while running at 30 miles per hour and several passengers were injured. The derailment occurred on a curve and was due to weak construction of the supports of the overhead guiding rail. The overhead structure was rebuilt and strengthened and regular operation was commenced in November. The system employed for this line is known as the Tunis system and was first tried at the Jamestown Exposition. The car runs on a single ground rail and two motors are mounted on each driving axle without the use of gears. A continuous guide rail and current carrying conductor is suspended above the ground rail at a height sufficient to clear the car roof, and double guide wheels on the roof of the car prevent tilting to either side. The guide rail is suspended by a bracket catenary construction from steel poles spaced from 75 feet to 100 feet apart as in an ordinary overhead trolley system. See paragraphs on *Communications* in articles on the different countries.

**RAILWAY CONSTRUCTION.** See RAILWAYS.

**RAILWAY, EIGHT HOUR LAW.** See LABOR.

**RALEIGH, WALTER.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**RAMSAY, Sir W. M.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**RAPPAPORT, K. S.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**RASSAM, HORMUZD.** A Syrian Orientalist, died September 16, 1910. He was born at Mossul, in northern Mesopotamia, opposite the site of Nineveh, in 1826. In 1845 he joined Austin Henry Layard as assistant in his Assyrian researches and lived with him for more than two years. When Mr. Layard returned to England, Rassam accompanied him and completed his studies at Oxford. In 1849 he was sent by the trustees of the British Museum to accompany Mr. Layard in his second undertaking and he was later placed in charge of an independent expedition. In 1864 he went to Abyssinia and was made a prisoner and kept in chains for nearly two years by King Theodore. From 1876 to 1882 he again conducted Assyrian explorations. During the Turco-Russian War he was sent by the British Foreign Office on a special mission to Asia Minor, Armenia and Kurdistan to inquire into the condition of the different Christian communities. He was the author of *British Mission to Theodore, King of Abyssinia; Ashur, and the Land of Nimrod; The Garden of Eden, and Biblical Sages and Biblical Lands*.

**RAT-BITE FEVER.** Under this name Horder, of St. Bartholomew's Hospital, London, reported three cases of a previously undescribed disease, adding something to our knowledge of the rôle which this rodent plays in the dissemination of disease. Each of the cases reported had sustained a bite from a rat, and after an incubation period of three to four weeks inflammation of the lymph channels in the tissues about the bite set in, accompanied by malaise, anorexia, and fever. At the same time, hard, reddened patches appeared, irregularly distributed over the skin, and tender swellings in the muscles. The attack may last from a few days to a week, and a series of similar attacks follow at intervals, sometimes for several months, the intervals varying from three to ten days. No germ was found in the blood, but Horder believes that the infective agent is a protozoön.

**RATE DISCRIMINATIONS.** See RAILWAYS.

**RATIONS.** See MILITARY PROGRESS.

**RATE REGULATION.** See RAILWAYS.

**REALISM.** See PHILOSOPHY.

**RECALL.** The recall is the most modern of the new "checks" on the exercise of administrative powers. In its simplest terms it is a provision for the removal of an elected official (although in some places there is a suggestion that it be applied to appointive officials as well) by an affirmative vote of the electors at a special election called by a formal petition to which a varying percentage (usually 25) of the electors have attached their signatures.

**CITIES HAVING THE RECALL.** Los Angeles, in 1903 seems to have been the first city to have made the recall a part of its city charter. In 1905, San Diego, Cal., San Bernardino, Cal., Pasadena, Cal., and Fresno, Cal., followed. In 1906, Seattle joined the list and in 1907 there were added Everett in Washington and six cities in California, viz: Santa Monica, Alameda, Long Beach, Vallejo, Riverside and San Francisco. Of the commission-governed cities, the following have a recall provision: Dallas, Fort Worth, Denison, Austin, Waco, Palestine, Corpus Christi, Marshall and Amarillo, Texas; Leinston, Idaho; Huntington and Bluefield, West Virginia (the latter through a citizens' board); Haverhill and Lynn, Massachusetts; Colorado Springs and Grand Junction, Colorado; Berkeley and Oakland, California; Tacoma, Washington; McAlester, Sapulpa, Enid, Ardmore, Tulsa, Muskogee and Bartlesville, Oklahoma.\* The State commission government laws which provide a recall for the cities availing themselves of the act are: Iowa, Kansas (cities of the first class); Illinois; South Dakota; South Carolina and Louisiana. In Minnesota the cities adopting a commission plan may include the recall. Oregon adopted an amendment to its constitution (June 1, 1908) by a vote of 58,381 for to 31,002 against, which provides for the recall of State officials. The amendment, which was proposed on initiative petition, gave "to the voters the power to call a special election at any time to discharge any public officer and to elect his successor."

**LOS ANGELES.** Los Angeles was the first to adopt a recall provision and the first city to

\* See paper of Dr. E. S. Bradford in the "Proceedings" of the Buffalo Meeting of the National Municipal League.

apply it. It has recalled an alderman and a mayor. The former had voted to give a certain political newspaper the city printing at a figure \$15,000 above that bid by other journals. The removal of the mayor, who had been making unfit appointments to office, and was otherwise unworthy, was the second instance. The removal in March, 1909, of so important an official as a mayor awakened general interest and comment throughout the country. Mayor Harper resigned before the recall went into effect. A successor was elected at the special election called by the petition. He was re-elected at the regular election for the full term. At another time the threat of the recall directed against the council caused that body to rescind their vote giving away three miles of river bed worth a million dollars.

**DECISION IN THE CASE OF RICHMOND, CAL.** In Richmond, California, in the spring of 1910, a petition was presented to the city council demanding a recall election for the entire council. The board refused to order the election upon the ground that the reasons set forth were not sufficient and the charges were not definite enough. The matter was then taken into the Superior Court through mandamus proceedings, and the superior judge issued a writ of mandate running to the council, ordering the election. The recall provision was upon argument declared constitutional by the Superior Court and then an appeal taken to the Supreme Court of the State. In *Hilfinger vs. Gilman*, the Supreme Court of Washington (105 Wash. Reps. 471) has decided that the provision in a city charter for the recall of any elective officer is not in conflict with the constitution, providing that all officers not liable to impeachment shall be subject to removal for misconduct or malfeasance, as provided by law.

**RECENT INSTANCES.** Dallas, Texas, which is operating under the commission form, used the recall for the first time in the spring of 1910. Two members of the school board removed a teacher against whom there were no complaints or charges. In fact she was a particularly efficient educator. One member of the board, it seems, desired the place for a friend and the teacher was summarily removed. The parents of the children took the matter to the public, a special election was called and the members of the school board "who fought a woman," were recalled. Seattle voters proposed in December to recall the mayor of that city, Hiram C. Gill, on the question of his administration of the laws relating to vice and graft. See WASHINGTON.

**ARGUMENTS FOR THE RECALL.** In reply to the objection that the recall would lead to governmental instability, its advocates and supporters aver that "it virtually operates in the House of Commons of England, through the failure of the cabinet to maintain a majority or the success of a want of confidence motion. It actually exists in all the national and municipal offices of England, because the men who hold the offices are appointed, and misbehavior or inefficiency leads to suspension or dismissal. Under our elective system, if we elect an official who turns out to be a fool or a rascal we have no redress. The recall would give the voters the power of discharging an incompetent, or untrustworthy, servant. And that is all. But the voters should have that power."

**RECEIVERSHIPS, RAILWAY.** See RAILWAYS.

**RECIPROCITY.** See CANADA, History, and TARIFF.

**RECLAMATION.** **FEDERAL RECLAMATION.** The projects for the reclamation of the arid public lands of the United States are carried on by the act of Congress approved June 17, 1902, known as the Reclamation act. This act set apart as a fund for the reclamation of arid lands all moneys received from the sale of public lands in certain of the Western States and Territories, excepting 5 per cent. of the proceeds of such sales, set aside by law for educational and other purposes. The receipts from this source to June 30, 1910, amounted to about \$65,700,000 and the net investment of the fund in reclamation works on the same date amounted to \$53,781,302.

Since March 4, 1909, no new projects have been undertaken under this act, but prior to that date 32 primary projects had been undertaken, the net investment in which to June 30, 1910, amounted to \$52,945,441.

The receipts from the sales of public lands were found to be insufficient for the speedy completion of existing projects, and on the recommendation of the Secretary of the Interior and President Taft, Congress passed on June 25, 1910, a measure authorizing the issuance of not to exceed \$20,000,000 in certificates of indebtedness payable out of the reclamation fund five years after the date of their issue. The appropriation was made subject to the provision that it should be expended upon existing projects and necessary extensions and that no part of the amount should be expended until after the project shall have been examined and reported upon by a Board of the Engineering Officers of the United States Army and approved by the President as feasible, practical and worthy. The Board on December 26 recommended the expenditure of the \$20,000,000 appropriated by Congress for the different projects under construction as follows: Salt River, Ariz., \$95,000; Yuma, Ariz. and Cal., \$1,200,000; Grand Valley, Cal., \$1,000,000; Uncompahgre, Col., \$1,500,000; Payette-Boise, Idaho, \$2,000,000; Milk River, Mon., \$1,000,000; North Platte, Wyo. and Neb., \$2,000,000; Truckee and Carson, Nev., \$1,193,000; Rio Grande, N. M., Tex., and Mexico, \$4,500,000; Umatilla, Ore., \$325,000; Klamath, Ore. and Cal., \$600,000; Strawberry Valley, Utah, \$2,272,000; Sunnyside, Yakima, Wash., \$1,250,000; Tieton, Yakima, Wash., \$665,000. Total, \$20,000,000.

The Reclamation Service began its work in 1902 on the passage of the act above mentioned. The first contract was let in September of the next year and on June 17, 1905, an important project in Nevada was formally opened. Since that date the activities of the Reclamation Bureau have been extended to 26 or more projects. In the seven and a half years of its work, the service has built 4215 miles of canal; it has excavated 17 miles of tunnels and its excavations of rock and earth amount to 60,000,000 cubic yards. At the end of 1910 it had completed four of the highest dams in the world. These were the great Roosevelt dam in Arizona, one of the most massive in the world; the Shoshone dam in Northern Wyoming, the highest structure of its kind ever built; the Pathfinder in Southern

Wyoming, and the Laguna dam in Arizona. During the year the Gunnison tunnel, whose completion was celebrated in 1909, was for the first time utilized.

Among the several large projects under construction in 1910, one of especial interest is located in Northern Wyoming. This is the Shoshone dam, mentioned above, built to control the waters of the Shoshone River. This dam has a wedge of concrete 328 feet from base to top. A smaller dam will divert the waters through a tunnel  $3\frac{1}{4}$  miles long into a canal which for forty miles passes along the upper edge of a broad and fertile valley containing 150,000 acres. Another notable project is the Belle Fourche project in South Dakota. Across the valley of the Belle Fourche, which contains 100,000 acres of prairie, many miles of canal have been laid, and what was a short time ago a free cattle ranch region is rapidly becoming a compactly settled agricultural community. An impressive engineering feature of this project is the Owl Creek dam, one of the longest and highest earthen embankments in the world. This structure is 6200 feet long, has a maximum height of 115 feet and contains 1,600,000 cubic yards of material. The reservoir created by this dam will be the largest lake in the State. By means of a deep and wide canal  $6\frac{1}{4}$  miles long the entire flow of the Belle Fourche River is turned into the reservoir, to be taken up again into irrigating canals. It will supply 100,000 acres in 1911. Of the reclamation projects undertaken by the government, none is more important than the Salt River project in Arizona. This includes the construction of the wonderful Roosevelt dam which is built across a gorge which the Salt River has cut through the mountains. This dam will provide an adequate water supply for 240,000 acres of land. The Roosevelt dam is in many respects the most remarkable structure of its kind in the world. It has a height of 280 feet and a length on the top of 1080 feet. The enormous capacity of the reservoir created by it makes it one of the most stupendous engineering feats of modern times. Two valleys, one 12 miles and the other 15 miles in length, each from one to three miles wide, have been transformed by this dam into a lake 200 feet deep in places and containing enough water to cover the State of Delaware a foot deep. The reservoir, when full, has a capacity sufficient to fill a canal 300 feet wide and 19 feet deep extending from Chicago to San Francisco.

Other projects either completed or in course of construction are the Huntley and Lower Yellowstone-Sun River project in Oregon and the Grand Valley project in Colorado for which preliminary plans have been made; the Truckee-Carson project in Nevada; the Salt River Valley project in Utah; the Umatilla project in Oregon; the Klamath project in Oregon and California; and the Okanogan and Yakima projects in Washington. The latter is the largest irrigation project of the government. Here is a concrete dam which diverts the water into a canal and at the present time irrigates 45,000 acres. It will ultimately supply 94,000 acres. The table at top of next column gives the names of the different reclamation projects completed or in course of construction at the end of the year 1910, with the total cost, which includes building, maintenance, operation and water right charges.

PROJECT ACCOUNTS	
Projects	Cost
Arizona, Salt River.....	\$9,726,017.25
Ariz., Cal. Colorado River.....	43,537.95
California, Yuma.....	4,219,396.66
Orland.....	480,988.21
Colorado, Grand Valley.....	79,558.68
Uncompahgre.....	4,466,882.30
Idaho, Boise.....	4,138,769.07
Mini doka.....	4,510,743.66
Kansas, Garden City.....	428,142.40
Montana, Huntley.....	1,039,372.82
St. Mary, Milk River.....	891,690.28
Sun River.....	782,293.48
Mont., N. Dak., Lower Yellowstone.....	2,994,901.12
Neb. Wyo., North Platte.....	5,541,306.83
Nevada, Truckee, Carson.....	4,292,573.05
New Mexico, Carlisbad.....	856,523.48
Hondo.....	325,068.64
N. Mex., Texas, Rio Grande.....	300,936.26
R. G. Dam Appn.....	519,265.74
North Dakota, Mo. River Pumping.....	936,542.61
Oklahoma, Cimarron.....	8,873.17
Oregon, Central Oregon.....	42,910.96
Umatilla.....	1,389,127.92
Oregon, Cal., Klamath.....	2,093,573.59
South Dakota, Belle Fourche.....	2,792,810.19
Utah, Strawberry Valley.....	1,116,558.46
Washington, Okanogan.....	648,336.76
Yakima.....	5,046,181.41
Wyoming, Shoshone.....	3,794,800.62
Secondary Projects.....	587,354.03
Townsite Development.....	12,664.33
General Accounts.....	43,578.16
Indian Projects.....	
Montana, Blackfeet.....	55,787.04
Montana, Flathead.....	141,618.79
Montana, Fort Peck.....	49,558.92
	<b>\$84,420,263.53</b>

**STATE RECLAMATION.** By an act of Congress approved April 18, 1894, the Secretary of the Interior is authorized to enter into contracts with States containing public arid lands to patent to each of the States to which the law is applicable not to exceed 1,000,000 acres of land upon their reclamation through the State or its agent. Since the passage of this act applications have been made for 6,587,508 acres of land, of which amount 2,765,946 acres were applied for during 1910. The States from which applications have been made are Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah and Wyoming. The largest application has been made from Utah, 2,842,811 acres. From Wyoming application has been made for 1,371,153 acres; from Colorado, 728,881 and from Oregon, 568,726 acres. Legislation authorizing the temporary withdrawals of lands in the interests of the States and Territories, pending preliminary investigation, was enacted into law on March 15, 1910. See IRRIGATION, and LANDS, PUBLIC.

**RECLAMATION ACT.** See DRAINAGE; IRRIGATION; RECLAMATION.

**RED CROSS, AMERICAN NATIONAL.** The American Association of the International Red Cross was founded in 1882 under the leadership of Miss Clara Barton. It had its origin in the purpose of the conservation of human life in time of war, but the charter granted by Congress to the American Red Cross, which created it the officially authorized Red Cross of the United States government, provides that it shall not only take charge of the voluntary relief in time of war, but that it shall contain and carry on a system of national and international relief in time of peace and apply the same in mitigating the sufferings caused by pestilence, famine, fire, floods, and other great calamities and to devise and carry on measures for their prevention. The Red Cross has



SITE OF EAGLE DAM RECLAMATION PROJECT, NEW MEXICO

Digitized by Google

existed in its present form since 1904, when it was reorganized and reincorporated by act of Congress, January 5, 1905. It has affiliations with the government which ensure harmony and coöperation between the government and the society. President Taft has been the president of the society since 1908 and was re-elected in 1910. The society has for many years been attempting to raise an endowment fund of \$2,000,000. Of this amount, contribution of half a million dollars was secured during 1910 from New York City alone. A Red Cross seal was originated which could be attached to the backs of envelopes. These were succeeded by the Red Cross Stamp, which was used in 1909 and which caused some trouble with the post-office. More than 60,000,000 of these seals were distributed through the United States in 1910. The annual meeting was held on December 6, 1910. In addition to the reelection of President Taft, the following officers were elected: Vice-President, Robert W. de Forest of New York; Secretary, Charles L. Magee; Treasurer, A. P. Andrew, and Counsellor, Frederick W. Lehmann. The Society had at the end of its fiscal year, \$124,023 in cash in the treasury and \$204,863 in securities. Announcement was made at the meeting that prosecution of concerns which violated the act of Congress of June 23, 1910, protecting the Red Cross insignia from manufacturers may be expected if such violations continue. From the time of its reincorporation in 1905 the Red Cross has rendered assistance to sufferers from the Philippine typhoon, Japanese famine, eruption of Vesuvius, Italian earthquake, the Gulf storm, the Chinese famine, the Russian famine, the Mississippi cyclone, the Southern floods, Monongah mine disaster, the Chelsea fire, and Michigan and Canadian forest fires.

**REDMOND, JOHN.** See GREAT BRITAIN, *History*.

**REDUCTION PLANTS.** See GARBAGE AND REFUSE DISPOSAL.

**REED, C. B.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**REED, JOHN J.** A rear-admiral of the United States navy, retired, died October 24, 1910. He was born in 1841. He served with the Gulf Squadron and in the attack on Fort Fisher during the Civil War, and was afterwards in command of the Olympia, being succeeded by Admiral Dewey. He also saw service in the lighthouse board and was commandant of the Navy Yard at Portsmouth, N. H.

**REES, Sir J. D.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**REFERENDUM.** See INITIATIVE AND REFERENDUM.

**REFORMATORIES.** See PENOLOGY.

**REFORM BUREAU, INTERNATIONAL.** An organization aiming to promote all moral reforms in all lands, inaugurated by Rev. Wilbur F. Crafts, Ph. D., in a course of lectures on Sociology at Princeton University. The Bureau was incorporated at Washington in 1896. Among the special evils which it was formed to combat are intemperance, impurity, Sabbath breaking and gambling. Its work is carried on through legislation, by letters, by lectures and by literature. It has four fields of work, local, State, national and international. Its specialties at the present time in its local work are the censorship of theatres

and other shows, the purging of news stands of criminal and vicious literature and the enforcement of laws relating to morals. In the State work the Bureau gives special attention to race track gambling, which has been outlawed in all of the United States except six States. In its national work it has drafted thirteen laws which have passed Congress. Among these are laws which prevent the selling of liquor at immigrant stations, laws prohibiting the sale of liquor, opium and firearms by American traders in the islands of the Pacific having no civilized government, and the Gillett divorce reform act, which broke up the "divorce colonies" in the Territories. Important work in the international field has been carried on in relation to measures to restrict liquor selling in Africa and against the sale and use of opium in China and elsewhere. Among the bills presented by the Bureau in Congress in 1910-11 was a bill prohibiting the transmission of race-gambling bets from or into any State or Territory; a bill to prohibit interstate transportation of prize fight pictures; a bill to prohibit saloons in Hawaii; a bill to prohibit United States attorneys from engaging in private practice; a bill to prohibit the issuing of money orders and registering of mail on Sunday. A yet more important legislative task in which the Bureau, and especially its Oriental Secretary, Rev. E. W. Thwing, Tientsin, China, is engaged, in the carrying of an international prohibition of opium at a Hague Parliament of Nations to meet in 1911. The Bureau occupies a building of its own in Washington. The officers in 1910 were, President of the Board of Trustees, Henry W. Blair, Secretary, Rev. F. B. Power, D. D., Superintendent and Treasurer, Wilbur H. Crafts, Ph. D.

**REFORMED CHURCHES THROUGHOUT THE WORLD HOLDING THE PRESBYTERIAN SYSTEM, ALLIANCE OF THE.** An organization formed in London in 1875. It has held nine General Councils. The ninth Council was held in New York City in 1909 and the tenth will be held in Aberdeen, Scotland, in 1913. The churches connected with the Alliance number more than ninety and are located on all the five continents. The adherents of the Presbyterian and Reformed Churches in the world number about 25,000,000. The Alliance includes Presbyterian and Reformed Churches in the United States and Canada, England and Wales, Ireland, Scotland, in the Continent of Europe and in Africa, Asia, Australasia and South America. The President in 1910 was Reverend David James Burrell; the General Secretary, Reverend G. D. Matthews, and the American Secretary, Reverend W. H. Roberts.

**REFORMED CHURCH IN AMERICA (DUTCH).** A Protestant religious denomination, which was originally composed of settlers from Holland, but is now largely intermixed with elements from many other sources. Until 1867 it was known as the Reformed Protestant Dutch Church in North America. The first church organization of the denomination was established in 1628. According to the religious census made by the United States Census Bureau in 1906 and published in 1910, the total number of communicants in the denomination was 124,938 with 659 church organizations, 640 church edifices and 710 ministers. The value of the church property in 1906 was \$15,-

553,250. There were in the Sunday schools 120,705 scholars with 12,089 officers and teachers. According to the statistics gathered by the denomination itself, the total enrollment in 1910 was 116,815, with 684 churches and 728 ministers. The number of Sunday schools was 776, with a total enrollment of 117,854. The contributions received during the year for denominational objects was \$389,776, and for other objects, \$95,954. There were received for congregational purposes \$1,569,082, making a total of all contributions of \$2,054,812. The church sustains foreign missions in China, India, Japan and Arabia. The Church Building Fund has charge of the aid for the erection of new churches. Other funds supported by the denomination are the Disabled Minister's Fund and the Widows' Fund. There are three theological seminaries, the New Brunswick Seminary at New Brunswick, N. J., the Western Seminary at Holland, Mich., and the Arcot Theological Seminary at Vellore, India. The denomination sustains two colleges, Rutgers College at New Brunswick, N. J., and Hope College at Holland, Mich. The official organs are *The Christian Intelligencer*, published in New York City, *The Leader*, published at Holland, Mich., and *De Hope*, published in the Dutch language. There are in addition many missionary and departmental publications. The church has a Board of Education which furnishes aid to educational institutions and to young men studying for the ministry. Its legislative bodies consist of a general synod, four particular synods and thirty-six classes. The synods meet annually, the classes semi-annually. The headquarters of the denomination are at 25 East 22d Street, New York City.

#### REFORMED CHURCH IN THE UNITED STATES (GERMAN).

A Protestant religious denomination, founded by immigrants from the Palatinate and other districts of Germany, which was established in the United States at Germantown, Pa., in 1714. The church in 1910 numbered 293,836 communicants, 1737 churches and 1430 ministers. There are eight district synods and 59 classes corresponding to the presbyteries in Presbyterian bodies. The scholars in the Sunday schools numbered about 233,000 and the teachers about 25,000. The denomination carries on home mission work and its fields cover practically the entire United States and portions of Canada. There are 189 missions of which 71 are under the two German Boards, the Eastern and Western, and the remaining 118 are under the General Board. Foreign missions are carried on in Japan and China. Under the control of the denomination are the Eastern Theological Seminary at Lancaster, Pa., the Central Theological Seminary of the Reformed Church in the United States at Dayton, O., and a mission house for training missionaries at Sheboygan, Wisconsin. Franklin and Marshall College at Lancaster, Pa., is the leading collegiate institution under the denominational auspices. Other colleges are Heidelberg College at Tiffin, Ohio, and Ursinus College at Collegeville, Pa. Colleges for women are maintained at Frederick, Ind., and at Allentown, Pa.

**REFORMED EPISCOPAL CHURCH.** An Episcopal Church of historic orders, organized in 1873 in New York by members of the Prot-

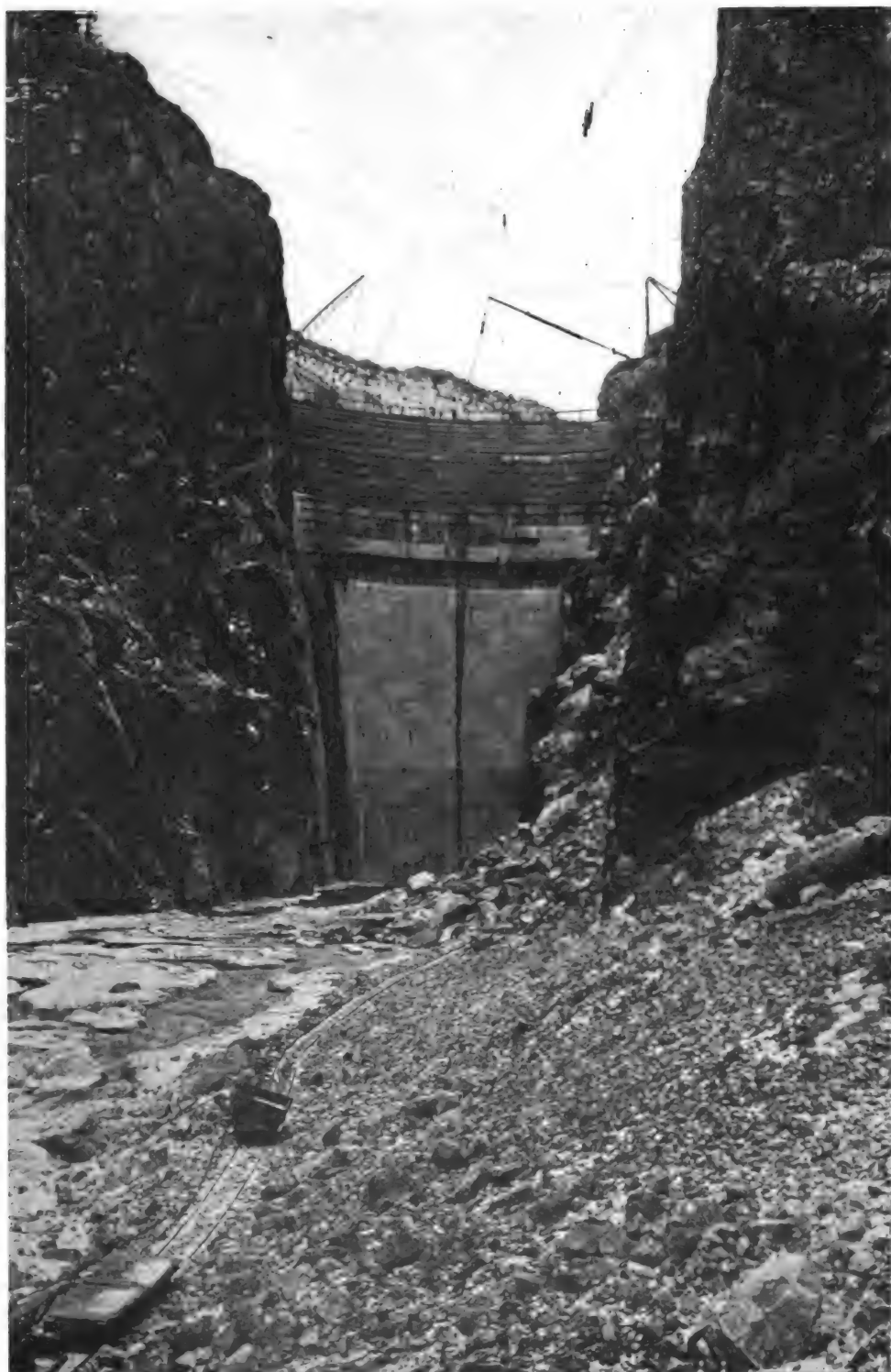
estant Episcopal Church who were opposed to the growth of sacramentarianism and sacerdotalism in that church and who made the separation in order that they might continue to worship after the historic orders of the English Reformation. According to the statistics of the General Council of the denomination, the church numbered in 1910 10,331 communicants, 89 parishes, including 32 colored churches in South Carolina, and 103 clergymen. There were six bishops, and one bishop in England. The value of church property is about \$1,833,032. The denomination endowment fund, exclusive of parochial endowments amounted to about \$350,000. The church carries on missionary work, including between 30 and 40 churches among the colored freedmen of the South. Foreign missions are carried on in India. The theological seminary of the denomination is in Philadelphia. The official organs of the church are *The Episcopal Recorder*, published in Philadelphia, and *The Evangelical Episcopalian*, published in Chicago.

#### REFORMED PRESBYTERIANS.

The general name given to several religious bodies of Presbyterian doctrine, founded by members of the Covenanted or Reformed Presbyterian Church of Scotland. The title includes the Synod of the Reformed Presbyterian Church of North America, the Reformed Presbyterian Church in North America, General Synod, the Reformed Presbyterian Church, Covenanted, and the Reformed Presbyterian Church in the United States and Canada. According to the religious census made by the United States Census Bureau in 1906, published in 1910, there were in the synod of the Reformed Presbyterian Church of North America, the largest body, 9122 communicants, with 116 churches and 128 ministers. In the Reformed Presbyterian Church of North America, General Synod, there were 3620 communicants, with 27 churches and 26 ministers. The other two bodies are small, the Reformed Presbyterian Church, Covenanted, reporting in 1906 only 17 communicants and the Reformed Presbyterian Church in the United States and Canada, 440 communicants. The General Synod maintains a theological seminary at Philadelphia and a college at Cedarville, Ohio. It sustains a mission in northern India. This body held its annual meeting at Cincinnati, Ohio, on May 18, 1910. The next annual meeting will be held at Cedarville, Ohio, on the third Wednesday of May, 1911.

**REFORM SCHOOLS.** See EDUCATION IN THE UNITED STATES.

**REICH, EMIL.** An Austrian author and historian, died December 11, 1910. He was born at Eperjes, Hungary, in 1854, and studied in that city and in the Prague, Budapest and Vienna universities. Up to his thirtieth year he devoted himself almost entirely to study. Declaring books unsatisfactory for a real comprehension of history, he determined to travel extensively in order to complement the study of books with the study of realities. He spent five years in the United States, four in France and twelve in England. In the latter country he lectured frequently at Oxford, Cambridge and London universities. His lectures were very popular and, although designedly lacking in profundity, contained evidences of wide and deep learning. He was employed by the British government to assist in the settlement of the



**SHOSHONE DAM**

**HIGHEST IN THE WORLD 328 FEET. COMPLETED JANUARY 20, 1910**

**'See Reclamation'**

111011

Venezuela boundary case. Among his published writings are *History of Civilization*; *Greco-Roman Institutions* (Oxford Lectures); *Hungarian Literature*; *Foundations of Modern Europe*; *Success among Nations*; *Select Documents illustrating Medieval and Modern History*; *Fundamental Principles of Evidence*; *The Failure of the Higher Criticism of the Bible*; *Success in Life*; *General History of Western Nations*; and *Nights with the Gods* (1909).

**REICHSRATH.** See AUSTRIA-HUNGARY.

**REICHSTAG.** See GERMANY.

**REID, G. A. O.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**REID, W. M.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**REINECKE, KARL.** A German composer, died in March, 1910. He was born in 1824 at Altona, Prussia. He studied with his father, Johann Reinecke, a composer and director. From 1846 to 1848 he was Court pianist to Christian VIII at Copenhagen. In 1851 he became teacher at the Cologne Conservatory and occupied at later times the positions of musical conductor at Barmen, academic musical director and conductor at the Singakademie at Breslau, conductor of the Gewandhaus concerts at Leipzig and teacher at the Conservatory. His compositions are refined and classic throughout, but possess here and there a marked touch of the romantic. He composed studies, sonatas, quartets, quintets and trios. A five-act grand opera, *König Manfred*, was produced in 1867, an operetta in 1874, and two three-act comic operas in 1886 and 1891 respectively. He became widely known as an excellent conductor, and as a pianist for his interpretations of Mozart.

**REINFORCED CONCRETE BRIDGES.** See BRIDGES.

**RELATIVITY THEORY IN PHYSICS.** See PHYSICS.

**RELIGIOUS DENOMINATIONS.** Statistics and other information relating to the principal religious denominations will be found under their respective names in alphabetical order.

The religious census of the United States taken in 1906 was completed in 1910 by the publication of Volume 2, giving data relating to the separate denominations. Volume 1, issued in 1909, contained a summary and general tables of all the denominations. According to this census the whole number of communicants reported by all the religious bodies in 1906 was 32,936,445 of which 20,287,742 or 61.6 per cent. were returned by 164 Protestant bodies; 12,079,142 or 36.7 per cent. by the Roman Catholic Church and 569,561 or 1.7 per cent. by twenty-one other bodies. In considering figures showing the relative importance of the different bodies with respect to the number of communicants or members, it should be borne in mind that among the Jewish congregations, the Roman Catholic Church and the Protestant bodies, differences in the requirements for membership exist which prevent statistics based on membership from giving a correct index of the religious affiliations of the population of the United States. The Jewish congregation includes as members only the heads of families; the Roman Catholic Church includes as members all persons baptized into the church and it requires that all children of members shall be baptized as soon as possible

thereby themselves becoming members. The Protestant bodies as a rule admit only those who, after reaching fairly mature age, declare their desire to join the church.

Among the Protestant bodies, the Methodist bodies rank first in number of members with 5,749,838 or 17.5 of the total number. The Baptist bodies come next with 5,662,234 members or 17.2 per cent. These two bodies constitute somewhat more than one-third of the entire Protestant membership of the country.

The greatest percentage of increase in the decade 1890 to 1906 is shown by the Christian Scientists, who increased their membership 882.5 per cent. Next in order of relative increase are independent churches, 451.4 per cent. Among the larger Protestant denominations, Disciples of Christ or Christians showed the largest rate of increase, 78.2 per cent. The Protestant Episcopal Church showed an increase of 66.7 per cent.; the Methodist bodies, 25.3 per cent. and Baptist, 52.5 per cent. The Christians or Christian Connection showed an increase of 6.2 per cent. The Roman Catholic Church showed an increase of 93.5 per cent. The increase in all Protestant bodies in the decade was 44.8 per cent. The total value of church property of all denominations reported was \$1,257,575,867. Of this, the property value of the Protestant bodies was given at \$935,942,578. The increase in the value of the property from 1890 to 1906 was, in Protestant bodies, 70.3 per cent. and in all denominations, 35.1 per cent. See SOCIAL WORK OF THE CHURCHES.

The table at top of page 628 shows the number of communicants in 1906, and the rate of increase from 1890 to 1906, in each denomination.

**RELIGIOUS EDUCATION.** See UNIVERSITIES AND COLLEGES, and EDUCATION IN THE UNITED STATES.

**REMEDIAL LOAN ASSOCIATIONS,** NATIONAL FEDERATION OF. See CHARITY.

**BENKIN, M.** See BELGIUM, *History*.

**BENWICK, G.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**REPUBLICAN PARTY.** See UNITED STATES, *Campaign and Elections*.

**RESERVOIRS.** See AQUEDUCTS; DAMS; IRRIGATION, and RECLAMATION.

**RESINITE.** See CHEMISTRY, *Industrial*.

**RESTREPO, CARLOS E.** See COLOMBIA.

**REUNION, or BOUBRON.** An island in the Indian Ocean; a French colony. Area, 965 square miles. Population (1907), 177,677. Capital, St. Denis, with 25,689 inhabitants; St. Pierre had 31,927; St. Paul, 20,091; St. Louis, 12,846; St. Benoît, 11,692. Schools (1909), 169, with 14,381 pupils. Sugar cane is the principal cultivated product, extending over 30,000 hectares. Next in importance is vanilla, 4000 hectares. Tobacco, manioc, coffee, cacao and spices are grown. Livestock (1898): 2345 horses; 2950 mules; 3495 cattle; 13,750 sheep and goats. There are no mines. Imports and exports in 1909 were valued at 13,233,483 and 16,351,853 francs respectively, against 11,812,627 and 15,179,074 in 1908. Sugar, rum, and tapioca are the chief exports. Railways (end of 1909), 126 kilometres (78 miles). Telegraph lines, 332 kilometres (206). In 1909, 87 vessels of 169,326 tons entered, and 88 of 171,679 tons cleared; in 1908, 109 vessels of 202,723 tons entered, and 106 of 197,165 tons cleared. The budget for 1909 balanced at

Denominations	Communicants or Members			
	Number		Increase from 1890 to 1906	
	1906	1890	Number	Per cent.
All denominations .....	32,936,445	20,597,954	12,367,530	60.4
Protestant bodies .....	20,287,742	14,007,187	6,280,555	44.8
Adventist bodies .....	92,735	60,491	32,244	53.3
Baptist bodies .....	5,662,234	3,712,468	1,949,766	52.5
Christians (Christian Connection) .....	110,117	103,722	6,395	6.2
Church of Christ, Scientist .....	85,717	8,724	76,993	882.5
Congregationalists .....	700,480	512,771	187,709	36.6
Disciples or Christians .....	1,142,359	641,051	501,308	78.2
Dunkers or German Baptist Brethren .....	97,144	73,795	23,349	31.6
Evangelical bodies .....	174,780	133,313	41,467	31.1
Friends .....	113,772	107,208	6,564	6.1
German Evangelical Synod of North America .....	293,137	157,432	105,705	56.4
Independent churches .....	73,673	13,360	60,313	451.4
Lutheran bodies .....	2,112,494	1,231,072	881,422	71.6
Mennonite bodies .....	54,798	41,541	13,257	31.9
Methodist bodies .....	5,749,838	4,589,284	1,160,554	25.3
Presbyterian bodies .....	1,830,555	1,277,851	552,704	43.3
Protestant Episcopal Church .....	886,942	532,048	354,894	66.7
Reformed bodies .....	449,514	309,458	140,056	45.3
Unitarians .....	70,542	67,749	2,793	4.1
United Brethren bodies .....	296,050	225,281	70,769	31.4
Universalists .....	64,158	49,194	14,964	30.4
Other Protestant bodies .....	226,703	129,374	97,329	75.2
Roman Catholic Church .....	12,079,142	6,241,708	5,837,434	93.5
Jewish congregations .....	101,457	130,496	(b)	(d)
Latter-day Saints .....	256,647	166,125	90,522	54.5
Eastern Orthodox Churches .....	129,606	600	129,006	21,501.0
All other bodies .....	81,851	51,838	30,013	57.9

a Exclusive of 14,852 communicants or members reported for 26 organizations in Alaska.

b Exclusive of Jewish congregations.

c In 1906, heads of families only. In 1890, members as well as heads of families included.

d As the figures for the two censuses are not comparable, the increase can not be shown.

4,508,450 francs. French expenditure (1910), 2,369,690 francs. The budget for 1911 balanced at 4,949,380 francs. The colony is administered by a governor (1910, M. Rodier).

**REVENUE.** See paragraphs on *Finance* in articles on countries and States of the United States.

**REYNOLDS, M. C.** See *LITERATURE, ENGLISH AND AMERICAN, Essays and Literary Criticism*.

**REYNOLDS, S.** See *LITERATURE, ENGLISH AND AMERICAN, Fiction*.

**RHEIMS AVIATION MEET.** See *AERONAUTICS*.

**RHOADES, LEWIS ADDISON.** An American scholar and educator, died August 30, 1910. He was born at Skaneateles, N. Y., in 1860, and graduated from the University of Michigan in 1884. He afterwards studied at the University of Göttingen. After having taught in the high schools at Ann Arbor, Michigan, he was appointed in 1888 instructor of German in the University of Michigan, remaining in this position until 1890. From 1896 to 1903 he was professor of German in the University of Illinois and from 1903 to the time of his death was professor of German in the Ohio State University. He wrote *Hölty's Verhältniss zur Englischen Litteratur* (1893), and was the joint author of Becker-Rhoades's *Elements of German* (1909). He edited many of the German classics.

**RHODE ISLAND.** One of the New England Division of the United States. Its area is 1248 square miles. Its capital is Providence.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 542,610 as compared with 428,566 in 1900 and 345,506 in 1890. The increase in the decade

1900 to 1910 was 26.6 per cent. This was the highest percentage of increase in any of the New England States. The State ranks thirty-eighth among the States in point of population, whereas in 1900 it ranked thirty-fifth. The population of the larger cities and towns will be found in the tables in the article *UNITED STATES CENSUS*.

**MINERAL PRODUCTION.** The mineral products of the State are not important and consist chiefly of stone. The value of the stone product in 1908 was \$556,474. This was almost entirely granite. The State is a large producer of mineral water, of which 594,208 gallons were produced in 1908. Among other mineral products produced in small quantities are coal products, graphite and talc.

**AGRICULTURE.** The acreage, production, and value of leading crops is given for 1909 and 1910 in the following table:

	Acreage	Prod. bu.	Value
Corn 1910 .....	11,000	440,000	\$365,000
1909 .....	11,000	365,000	354,000
Oats, 1910 .....	2,000	70,000	34,000
1909 .....	2,000	50,000	26,000
Potatoes, 1910 .....	6,000	816,000	563,000
1909 .....	6,000	750,000	600,000
Hay, 1910 .....	63,000	74,000	1,450,000
1909 .....	62,000	68,000	1,265,000

a Tons.

**EDUCATION.** The towns of Rhode Island established schools in an early period of its history, but the existing State system of schools had its beginning in early legislation of the nineteenth century. In all the elements of a State system, that of Rhode Island has become highly developed through increasing State sup-

port and direction. The average length of school years has been 194 days for several years. In 1910 out of a school population of 103,071 there were enrolled in schools 87,893 pupils, of whom 69,456 attended public schools. Seventy-five per cent. of the teachers have had professional training. The average annual salary of all teachers is \$655.00, it having increased \$185 in ten years. The State established a system of teachers' retirement pensions in 1907, which is supported wholly by a State appropriation. In 1910 there were 79 retired teachers on the pension roll receiving annually \$26,170.37. High schools are maintained in municipalities having ninety per cent. of the population and all towns are required to provide free secondary school education. The Rhode Island Normal School, the largest State Normal School in New England, is maintained at an annual expense of \$72,000. The Rhode Island State College, the Rhode Island School of Design and Brown University are the principal institutions for higher education. The State has 57 free public libraries, containing half a million volumes, in its 38 towns and cities, and in addition has important historical libraries and societies.

**CHARITIES AND CORRECTIONS.** The charitable and correctional institutions of the State with their populations in 1910 were as follows: State Hospital for the Insane, 1146; Workhouse and House of Correction, 271; Almshouse, 528; State Prison, 148; Providence County Jail, 337; Sockanosset School, 340; Oak Lawn School, 53. The cost of the maintenance of these institutions in 1910 was \$448,399. Of the 38 cities and towns in the State, 25 maintain almshouses and in the other 13 the dependents are supported in private homes or at the State Almshouse in Cranston. The School for Feeble-minded is under the control of the State Board of Education and is located at Exeter.

**POLITICS AND GOVERNMENT.** The State legislature was in session in 1910 as the sessions are annual. The chief measures passed will be found noted in the section *Legislation* below. On April 29, the Federal income tax amendment to the constitution was defeated. The most interesting and important event in the political history of the State from a national standpoint was the announcement made on April 18 by Senator Aldrich that he would not be a candidate for re-election. He gave as his reason, the condition of his health. Senator Aldrich has been for years one of the most prominent members of the United States Senate and was perhaps for the past two or three terms the strongest member of that body in influence and power. He was chairman of the Finance Committee which formulated the tariff bill in the Senate, passed in 1909. He was first elected to the Senate in 1881, having previously served several terms in Congress. This decision of Senator Aldrich makes it necessary for the legislature of 1911 to choose his successor. An event which was hardly less important in the political history of the State was the death on September 22 of General Charles R. Brayton (q. v.) who for many years was the chief political power in the State and practically a dictator in matters of Republican politics.

On August 16 the legislature convened in extra session to consider the report of the redistricting commission and changed the size of the lower branch of the assembly from 72 to 100 members.

**CONVENTIONS AND ELECTIONS.** The election in 1910 was for governor and other State officers and for members of Congress. The Democratic State Convention met at Providence on September 29. It was the largest Democratic convention ever held in the history of the State. The Convention nominated Lewis A. Waterman of Providence for governor and Philip E. Clarke of Newport for lieutenant-governor. For Congress, George F. O'Shaunessy of Providence and Thomas F. Cooney were nominated. The platform adopted by the convention denounced the Payne-Aldrich tariff, advocated election of United States Senators by the people, denounced "Cannonism" and advocated reapportionment of the State Senate according to population.

The Republican State Convention met at Providence on October 19. It renominated for governor Aram J. Pothier of Woonsocket, and for lieutenant-governor Zenas W. Bliss of Cranston. For Congress William Paine Sheffield of Newport was renominated and George H. Utter received the nomination in the second district. In its platform the convention endorsed the national administration and pledged to it its loyalty and support. It emphatically approved the Payne-Aldrich tariff bill and asked for investigation and discussion of its effect on State industries. It regretted the withdrawal of Senator Aldrich as a candidate for United States Senator, advocated fundamental changes in the taxation laws of the State, the establishment of a State department of taxation and approved various measures adopted and made effective during the Taft administration.

The campaign which followed these elections was one of the most aggressive in the history of the State. Although the State is normally Republican by a large majority Governor Pothier was re-elected by a plurality of only 1140 votes. He received 33,540 to 32,400 cast for Mr. Waterman, the Democratic nominee. Governor Pothier's plurality in 1909 was 11,769. The Democrats elected their candidate for Congress in the first district by a plurality of 1851, but in the second district the Republican candidate, Mr. Utter, was elected by a plurality of 5279. The entire Republican State ticket was elected.

**LEGISLATION.** Among the important measures enacted at the legislative session of 1910 were the following: The law relating to child labor was so amended that no child under 14 years of age may be employed in any factory or business establishment, and none under 16 years of age between the hours of eight at night and six in the morning, nor unless the child has a schooling certificate. The department stores of the State were unable to secure the Christmas time exemption, which occurs in a similar act passed by the New York legislature. A measure was enacted by which any person may be punished, who, having the care or custody of a child abandons, mistreats or neglects him or permits his home to become the resort of lewd, wanton or dissolute persons so that it becomes unfit for the child to live in. This act is applicable only to children under seven years of age. A law was passed providing that the commissioners of shell fisheries in the State shall make sanitary inspection of all shell fish grounds, draw up regulations and issue certificates of satisfactory condition. The factory inspection act was amended by adding several sections, providing for the inspection of bakeries, confec-

tionery and ice cream shops. All cooked foods are to be kept out of the dust while on sale or in transit through the streets. No basements below the street level are to be used for shops or bakeries. A law was enacted providing for factory inspection by a chief and four inspectors, one of whom shall be a woman. October 12 was made a legal holiday, to be known as Columbus Day. Important legislation was enacted relating to white slaves, as a result of the agitation carried on during 1900-10.

**STATE OFFICERS.** Governor, Aram J. Pothier, Republican; Lieutenant-Governor, Zenas W. Bliss, Republican; Secretary of State, J. Frederick Parker; Attorney-General, William B. Greenough; Treasurer, Walter A. Read; Adjutant-General, Frederick M. Sackett; Auditor, Charles C. Gray; Commissioner of Public Schools, Walter E. Ranger; Commissioner of Insurance, Charles C. Gray—all Republicans.

**SUPREME COURT.** Chief Justice, Edward C. Dubois; Associate Justices, Clark H. Johnson, C. Frank Parkhurst, John T. Blodgett, William H. Sweetland. Clerk of the Court, B. S. Blaisdell—all Republicans.

**STATE LEGISLATURE 1911.** Republicans, Senate, 25; House, 62; joint ballot, 87; Democrats, Senate, 13; House, 38; joint ballot, 51; Republican majority, Senate, 12; House, 24; joint ballot, 36. House and Senate each contains 2 Independents.

**RHODESIA.** An inland South Africa territory; a British protectorate. The natural division into Northern and Southern Rhodesia is made by the Zambezi River, and both are administered by the British South Africa Company.

**SOUTHERN RHODESIA** has a total area of about 144,000 square miles, and includes the two provinces of Matabeleland (capital, Bulawayo) and Mashonaland (capital Salisbury). European population (1907), 14,018; estimated 1910, about 18,000; natives (1907), 662,786. Bulawayo had (1907) 3491 white inhabitants; Salisbury, 1684. The plateaux are well adapted to the cultivation of cereals and vegetables; tobacco, rubber, and cotton are indigenous. The country is being re-stocked; and the prevalent veterinary diseases are being successfully checked by inoculation. The country is rich in minerals. Entire gold output from 1890 to December 31, 1909, 3,332,178 ounces, valued at £14,455,233; for the year ended December 31, 1909, £2,623,708. Output of silver (1890 to December 31, 1909), 991,235 ounces; copper, 316 tons; lead, 4595; coal, 757,622; chrome iron, 50,642; asbestos, 327; diamonds, 7020 carats. Total imports (1908), £818,372; exports, £2,614,496 (gold, £2,391,552; gold concentrates, £113,902; chrome ore, £31,098).

**RAILWAYS.** The main lines are the Mashonaland and the Rhodesia railways. The latter (a continuation of the line from Cape Town to Vryburg by way of Kimberley—the Cape-to-Cairo line) was opened to Bulawayo in 1897 (total distance from Cape Town, 1362 miles). A line connecting Salisbury with Bulawayo was completed in 1902 (300 miles); and from Salisbury the Mashonaland Railway runs to Beira in Portuguese East Africa via Umtali (375 miles). From Bulawayo the line to the Victoria Falls via the Wankie coal fields was completed in 1904 (281 miles). The line crosses the Zambezi at the Falls and has been opened to the Rhodesian border in N. W. Rhodesia,

with an extension in Congo territory to Elizabethville (Star of the Congo Mine) (distance from the Falls to the border, 507 miles). A light railway connects Salisbury with the Ayrshire mine (84 miles), with a branch to the Eldorado mine (12 miles). There is a line from Gwelo to Selukwe (23 miles); one from Bulawayo to West Nicholson via Gwanda (119); and a branch to the Matopos (9), where Cecil Rhodes is buried. A branch line from Lyndhurst Halt to Umduma (50 miles) was opened in June, 1909.

The African Transcontinental Telegraph Line (Cape-to-Cairo) has been constructed as far as Ujiji (German East Africa), about 3250 miles from the Cape. There are about 3000 miles of roads. Post-offices, 76. There is a post-office savings bank. Administrative revenue (1908-9), £551,789; expenditure, £524,471. Administrator for the Company (1910), Sir W. H. Milton.

**NORTHERN RHODESIA**, divided into North-Eastern (109,000 square miles) and North-Western Rhodesia (182,000 square miles), has an approximate population of 950 Europeans and 906,000 natives. N. W. Rhodesia (or Barotseland had (1908) imports and exports amounting to £120,029 and £118,326 respectively. Lealui is the residence of the native king, Le wanika. Administrator for the Company (1910), L. A. Wallace (acting), at Livingstone. Administrator of N. E. Rhodesia, Leicester P. Beaufort (acting), at Fort Jameson.

**RHODES SCHOLARSHIPS.** See **UNIVERSITIES AND COLLEGES.**

**RHODIUM.** See **ATOMIC WEIGHTS.**

**RIBOT, T.** See **LITERATURE, ENGLISH AND AMERICAN, Philosophy and Religion.**

**RICE.** Rice production in the United States in 1910 was especially favored by good weather during harvest time. Only a very small percentage of the crop was reduced in quality by unfavorable weather conditions, and the quality in general was higher than for several years. In western Texas the acreage was smaller than usual and the yields were comparatively light; and in parts of southwestern Louisiana and along the Mississippi River in that State the crop was also not fully satisfactory. The yield in South Carolina was considerably smaller than last year but the quality was about the same.

The United States produced in 1910, 24,510,000 bushels on 722,800 acres, the average yield per acre being 33.9 bushels. This is the largest crop ever produced. Last year, when the crop exceeded the average of the previous five years by 25 per cent. the total yield was 24,368,000 bushels from 720,225 acres, the average yield being 33.8 bushels per acre. The leading States and their production in 1910 were as follows: Louisiana 12,769,000; Texas, 8,738,000; Arkansas, 2,400,000 and South Carolina, 357,000 bushels. Texas produced over 1,000,000 bushels less and South Carolina over 100,000 bushels less than the year before. The price of rice has declined since 1909, and the total value of the crop of 1910 is about 2 per cent. below the five-year average.

The world's production of rice is between three and four billion bushels, about one-half of which is grown in China. In Mexico rice culture is on the increase, especially in the southern part where a large and growing area of Honduras rice has been established during recent years.

The rice production of Japan for 1910 was 324,023,600 bushels, or about 41,000,000 bushels less than in 1909. Japan grows about 7,000,000 acres of rice each year, or about seven times the area in wheat.

The World's Rice Production in 1909 and 1910 is as follows:

Countries	1909	1910
	<i>Bushels</i>	<i>Bushels</i>
United States .....	24,324,400	24,464,100
Spain .....	10,140,300	10,323,600
Italy .....	23,242,100	21,417,200
Japan .....	365,397,700	324,023,600
Bulgaria .....	253,400	782,400

The above figures are taken from the Bulletin of Agricultural Statistics, International Institute of Agriculture, Rome, and are in part final and in part preliminary data.

The rice farmers of Louisiana and Texas organized in 1910 the Southern Rice Growers Association, for the purpose of contracting for the selling of rice with individual farmers only. The association is to receive 10 cents a bag commission and to spend at least 2 cents per bag in advertising rice. An older organization, known as the Rice Association of America, has nothing to do with the handling of rice, but directs its efforts towards the collection of rice statistics and the dissemination of information regarding the value and uses of rice for food. In many rice-growing sections in the United States the practice of growing rice continuously is gradually giving way to a diversified system of rice farming. See *BERIBERI*.

**RICE, CALE YOUNG.** See *LITERATURE, ENGLISH AND AMERICAN, Poetry and Drama*.

**RICHARDS, WILLIAM ROGERS.** An American Presbyterian clergyman, died January 7, 1910. He was born in Boston in 1853, and graduated from Yale College in 1875. In 1875-6 he studied at the Columbia Law School, and graduated from the Andover Theological Seminary in 1879. In the same year he was installed as pastor in the Central Congregational Church of Bath, Me., serving in this position until 1884, when he became pastor of the Crescent Avenue Presbyterian Church of Plainfield, N. J. Here he remained until 1902 when he was called to the Brick Presbyterian Church as successor to Dr. Maltbie D. Babcock. Dr. Richards was a fellow of the corporation of Yale University and was for many years one of the college preachers in the college pulpit. He was a director of Union Theological Seminary and a member of the Presbyterian Board of Foreign Missions. He was author of *Ways of Wisdom* (1886); *For Whom Christ Died* (1902); *God's Choice of Men* (1905); and *The Apostles' Creed in Modern Worship* (1906).

**RIDDLE, GEORGE.** An American Shakespearean reader died November 26, 1910. He was born in Charleston, Mass., in 1851 and graduated from Harvard College in 1874. In the same year he made his first appearance as a reader in Boston. From 1875 to 1878 he was an actor on the stage, playing with Edwin Booth and other well-known actors. He was instructor in elocution in Harvard College from 1878 to 1881. From the latter date until the time of his death he appeared in Shakespearean and other readings in the principal American cities and attained a wide reputation as an elocutionist and interpreter of Shakespeare. He edited *A Modern*

*Reader and Speaker* and *George Riddle's Readings*.

**RINDERPEST.** Cattle plague, or Rinderpest the German name by which it is more commonly known, is the most fatal disease affecting cattle, in ordinary cattle the mortality varying from 90 to 95 per cent. It occurs endemically in China, India, and southern Russia, occasionally being introduced into the other countries of Europe and Asia as well as into Africa. In many instances it has been confounded with other diseases of cattle, especially in South Africa, where a number of diseases of a somewhat similar nature occur. The loss caused by this disease prior to the introduction of preventive inoculation was enormous. The total loss in Europe up to the end of the eighteenth century has been estimated at 300 million head. During the great epizootic in Africa in 1896 and 1897, 80 to 90 per cent. of the whole of the cattle of the country succumbed to the disease. The last outbreak to occur in South Africa was in 1902, but great losses have since been caused by East Coast fever. In Turkey, three great outbreaks occurred from 1896 to 1899, 70 to 80 per cent. of the affected cattle dying. In the Philippines it has caused the loss of many thousands of cattle and caribou and still exists in many parts of the Islands, new outbreaks frequently occurring. It nearly disappears during the dry season only to spring up in widespread epidemics soon after the beginning of the rainy season. In the United Provinces in India during the year ending March 31, 1910, 1771 deaths, or 66 per cent. of the total mortality among cattle from contagious diseases was due to Rinderpest. In Eastern Bengal and Assam it was the cause of 28,860 deaths during the year ending March 31, 1910, against 44,126 the previous year.

The symptoms are those of a severe, acute infective disease in which the digestive tract is the chief point of attack, the period of incubation varying from three to seven days. The causative agent occurs in all the secretions and excretions of the body; while ultraviolet it appears to be retained by the more porous Chamberlain filters.

Treatment consists of a strict quarantine, disinfection, and the application of immunizing agents. In a country where rinderpest is endemic a large percentage of the cattle are usually found to be immune to the disease; in India this immunity at times is found to be 50 per cent. and over. By Koch's bile method, which consists of an injection into the non-immune animal of 10 cc. of bile taken from an animal suffering from, or one that has passed through an attack, an immunity may be conferred which will last for several months. Three forms of serum immunization, the serum simultaneous, the deferred virulent blood and the serum alone methods are now practised. It is said that by the serum simultaneous method about 90 per cent. of the cases treated display an immediate permanent immunity.

In India in 1908-9, 627,349 doses of serum were inoculated. Of 38,153 animals inoculated in Bengal and Assam during 1909-10 by the serum alone method, 339 deaths were reported. The 43,377 inoculations made in the United Provinces in India, 1909-10, were chiefly for this disease.

**RINEHART, MARY ROBERTS.** See *LITERATURE, ENGLISH AND AMERICAN, Fiction*.

**RISING, WILLARD BRADLEY.** An American chemist, died February 9, 1910. He was born at Mechlenburg, N. Y., in 1839 and graduated from Hamilton College in 1864. He studied at the University of Michigan and at Heidelberg University in Germany. In 1866-67 he was instructor in chemistry at the University of California and from 1867 to 1869 was professor of natural science in that institution. In 1872 he was made professor of chemistry and retained that position until his death. From 1885 until his death he was State analyst of California and was also adviser and chemist of the State Board of Viticulture and State Board of Health. His specialty was thermal chemistry and in this branch he made a number of important discoveries. He also devoted much attention to the study of explosives and rendered important service in this field. He was a member of the jury of award at the World's Columbian Exposition in 1893 and at the Paris Exposition in 1900.

**RISORITE.** See MINERALOGY.

**RIVER AND HARBOR, IMPROVEMENT.** See DOCKS AND HARBORS.

**RIVER TRAFFIC.** See UNITED STATES, Commerce.

**RIVES, HALLIE ERMINIE.** See LITERATURE, ENGLISH AND AMERICAN, Fiction.

**ROADS AND ROADMAKING.** See PAVEMENTS AND ROADS.

**ROBERT FULTON MEMORIAL WATERGATE.** See WATERGATE, ROBERT FULTON MEMORIAL.

**ROBERTS, ELLIS.** See LITERATURE, ENGLISH AND AMERICAN.

**ROBINSON, Sir CLIFTON.** An English engineer, died November 6, 1910. He was born in Birkenhead, England, in 1848 and received a scientific and engineering education. As a youth he joined the engineering staff of George Francis Train, who had built the first tramway in Europe at Birkenhead. Mr. Train brought him to America in 1866 as one of his employes in street railway construction. After spending five years in New York and other American cities, he returned to London and at the age of 23 undertook the laying of street car lines in Cork, Ireland. Four years later he became general manager of the Bristol tramways, and later manager of the tramways of Edinburgh. In 1884 he began the building of the Highgate Cable Tramways. He returned to America where he superintended the construction of a system of traction for Los Angeles, Cal. He then designed and constructed the London United Electric Tramway System and in 1895 constructed the first electric tramway at Bristol. As managing director and engineer of the Imperial Tramways Company he constructed and reorganized the Dublin Southern District Electric Tramways in 1896, and the Middlesborough, Stockton and Thornaby Electric Tramways in 1898. In 1902 he took part in the construction of the great tube railway system of London and in 1906 designed and put into operation a successful system of through bookings between tramways and railways. He was engaged by the American Street Railway Association in 1889 to report on the general situation in regard to street railways in the United States. His report was presented at the convention of the Association at Pittsburgh in 1891. In 1904 he became managing director of the United Tramways Company of

London. He succeeded in converting it into an electric system against considerable opposition. At the time of his death he was in New York City on his way to inspect a railway proposed in Newfoundland. In 1905 he was knighted by King Edward for his service in connection with the underground and other transit lines of London. He was the author of several treatises on tramways. For one of these, *The World's Tramways*, he received the silver medal of the Society of Arts in 1902. He contributed many papers on tramways and kindred subjects to technical journals.

**ROBINSON, FRANKLIN CLEMENT.** An American chemist and educator, died May 25, 1910. He was born at East Orrington, Me., in 1852 and graduated from Bowdoin College in 1873. He was assistant in chemistry at Bowdoin in 1874. From 1875 to 1878 he was instructor of chemistry and mineralogy and from 1885 to the time of his death was professor of chemistry and mineralogy. He was State Assayer of Maine and was a member of the State Board of Health. His most notable achievement was the invention of a disinfecting apparatus the first ever produced that was feasible in using formaldehyde as a disinfectant. As an expert on the stomach, practically every case in the State in which there was a suspicion of poisoning was sent to him and for years he had appeared as the State's expert in murder trials. He was the author of *The Metals* (1878), *Qualitative Analysis* (1897). He contributed to the *American Chemical Journal* and other scientific periodicals.

**ROCHESTER, N. Y.** See MUNICIPAL GOVERNMENT.

**ROCKEFELLER FOUNDATION.** See CHARITY.

**ROCKEFELLER INSTITUTE.** See CANCER

**ROCK PRESSURE.** See GEOLOGY.

**ROCKS.** See GEOLOGY.

**ROD, LOUIS EDOUARD.** A French writer, died January 29, 1910. He was born at Nyon, Switzerland, in 1857. He studied at his native town and at Lausanne, and afterwards attended the universities of Bonn and Berlin. In early manhood he went to Paris and there, in 1879, published a pamphlet defending Zola's school of realism. In 1884 he became editor of *La Revue Contemporaine*. In 1887 he was chosen professor of comparative literature at the University of Geneva, but soon resigned this position. His first novels were naturalistic in tone. The first, *Palmyre Veulard*, was published in 1881. The realistic tendency appeared in several other novels, but in *La course à la mort*, which was published in 1885, he abandoned the field of realism and produced a philosophical novel in the form of an autobiography, which showed the influence of Schopenhauer's pessimism. In 1896 he published a defense of Wagner against his French detractors. His *Le sens de la vie*, which appeared in 1888, was in a more optimistic vein than his earlier works. His most significant work in the field of criticism was *Les idées morales du temps présent*. In 1899 M. Rod came to the United States at the invitation of the Cercle Français of Harvard University, and lectured at Cambridge on the history of French dramatic poetry. During this visit he made a tour of American colleges. In his writings, M. Rod drew his characters chiefly from the plain people of the lower middle classes, in which he made intimate studies. He was a lover of American literature, particularly of

the poems of Poe and Whitman. Among his best known works are the following: *Michel Tessier* (1893-94); *Les rochers blancs* (1895); *Pastor Naudie's Young Wife* (translated 1899); *Au milieu du chemin* (1900); *L'inutile effort* (1903); *Un vainqueur* (1904); *L'indocile* (1905); *L'ombre s'étend sur la montagne* (1907); *Le réformateur* (1906); *Dante* (1891); *Stendhal* (1891); *Les Allemands à Paris* (1890); and *Études et nouvelles études sur le XIXème siècle* (1888 et seq.).

**ROELKER, CHARLES RAFAEL.** A rear-admiral retired, of the United States Navy, died September 28, 1910. He was born at Osnabrück, Hanover, Germany, in 1841. He entered the United States naval service as third assistant engineer in 1862, and in 1864 was promoted to second assistant engineer. From 1865 to 1869 he served in the bureau of steam engineering of the Navy Department and was promoted to be first assistant engineer in 1868, and 1890 became chief engineer. In 1899 he was promoted to be commander, and in 1902 was made captain. He was transferred to the list of rear-admirals on the retired list in 1903.

**ROENTGEN RAYS.** See PHOTOTHERAPY.

**ROLFE, WILLIAM JAMES.** An American Shakespearean scholar and educator, died July 7, 1910. He was born at Newburyport, Mass., in 1827 and graduated from Amherst College in 1849. He taught for a time in Maryland, and was afterwards head master in high schools at Dorchester, Lawrence, Salem and Cambridge, Mass., for a period from 1852 to 1868. In the latter year he gave up teaching and became the editor of the *Popular Science News* and afterwards of the Shakespearean Department of the *Literary World* and the *Critic*. Early in his career he edited selections from Ovid and Vergil, and in collaboration, *The Cambridge Course of Physics*, 6 vols. (1867-68). Dr. Rolfe, however, was best known as a Shakespearean scholar. It is probable that he did more for the popularization of Shakespeare than any other American scholar. His edition of Craik's *The English of Shakespeare*, brought out more than forty years before his death, was reprinted many times. He wrote and compiled a dozen volumes on Shakespeare as man and dramatist. Turning his attention to a later period he brought out scholarly editions of Milton, Goldsmith, Scott, Wordsworth, Macaulay, Tennyson and Browning. He was a notable linguist being master of six or seven languages. Dr. Rolfe was a frequent contributor on philological and other subjects to American and foreign periodicals. From 1870 to 1873 he prepared a complete edition of Shakespeare which in 1903-7 was revised. From 1904 to 1908 he was president of the Emerson College of Oratory in Boston. Among his published writings, in addition to those mentioned above are *Select Poems of Goldsmith* (1875), of *Gray* (1876), of *Tennyson* (1884), *Mrs. Browning's Sonnets from the Portuguese* (1887), *Minor Poems of Milton* (1887), *Select Poems of Wordsworth* (1889), *Macaulay's Lays of Ancient Rome* (1888), *Select Dramas of Robert Browning* (1887), *Tales of Chivalry* (1887), *Tales from English History* (1888), *Fairy Tales* (1889), *Tales from Scottish History* (1891), *Lamb's Tales from Shakespeare* (1892), *Complete Edition of Tennyson*, 12 vols. (1895-1898). He was also the author of *Satchel Guide to Europe*, revised yearly from 1892 to 1897, *Shakespeare as a Boy* (1896), *Life of*

*Shakespeare* (1902) and *Shakespeare Proverbs* (1908).

**ROLLAND, ROMAIN.** See FRENCH LITERATURE.

**ROLLS, CHARLES STEWART.** An English aviator and scientist killed while flying July 12, 1910. He was born in London in 1877 and was educated at Eton and Trinity College, Cambridge. Following his graduation he specialized in practical electricity and graduated in engineering in 1898. He was the pioneer of the introduction of automobiles into England in 1896, and competed successfully in numerous competitions and races in England and on the Continent. He drove his car as representative for Great Britain in the Gordon-Bennett race in 1905, and has several times established the world's record for speed. He was early interested also in aeronautics and made 160 ascensions in balloons, and when the development of aeroplanes began he was one of the first among his countrymen to take active interest. After having taken lessons from Wilbur Wright, he made his first flight with the latter at Le Mans, France, in October, 1908. He was the first Englishman to cross the English Channel in an aeroplane, and accomplished the feat after having failed once, on June 2, 1910. He flew from Dover to Calais and back again without stopping, accomplishing the round trip of forty-two miles in ninety minutes. He read and lectured much on mechanics and aviation. He was a captain in the London section of the Army Motor Reserve, was managing director of Rolls-Royce, Ltd., British motor car manufacturers. He wrote chapters on motor cars and road locomotion for the *Encyclopædia Britannica* and the *Badminton Library*.

**ROMAN CATHOLIC CHURCH.** The religious census of the United States, taken in 1906 and published in its final form in 1910, gives the total number of Roman Catholic communicants in the United States in the former year as 12,079,142. As the church includes among its communicants all members of families who have been baptized, it cannot be fairly compared with the communicants of Protestant churches where only those actually identified with the churches are reckoned as communicants. In this census, however, 15 per cent. of the actual enumeration was deducted to cover children under nine years of age, this being the age at which the first communion is usually taken. According to these statistics, the total number of church edifices under the direction of the church was 11,881 with 10,303 organizations. The church property was valued at \$292,638,787. The Sunday schools as reported by 9406 organizations numbered 11,172 with 62,470 officers and teachers and 1,481,535 scholars. The number of clergy connected with the denomination, including archbishops, bishops, diocesan and regular priests, was 15,177. These figures may be compared with those contained in the official *Catholic Directory* which gives the figures at the close of 1910. According to these statistics there was at that time a Roman Catholic population of 14,618,761. The churches numbered 13,461 of which 9017 were churches with resident priests and 4444 were mission churches. The clergy numbered 17,084 of whom 4434 were religious and 12,650 were secular. The hierarchy of the church is composed of one cardinal, 13 archbishops and 97 bishops. The

seminaries numbered 82 with 6969 students; colleges for boys, 225; academies for girls, 696, and the parishes with schools 4972, with an attendance of 1,270,131 scholars.

The special activities of the Roman Catholic Church, missionary, educational and philanthropic are, for the most part, carried on in detail by the various religious orders, including the brotherhoods and sisterhoods. The home missionary work of the church, corresponding to the home missionary labors of the chief Protestant bodies, is less an organized work for church extension than a series of evangelistic or revival services which are called "missions." These missions have for their purpose the revival of religious interest in Roman Catholic communities and the conversion of non-Catholics. The Paulist Fathers, whose headquarters are in New York City, have as their especial province the conduct of missions with a view to the conversion of non-Catholics to Roman Catholicism. Among other orders especially interested in mission work are the Augustinian Fathers, the Benedictine Fathers, the Capuchin Fathers, the Jesuit Fathers, the Redemptorist Fathers, the Vincentian Fathers, the Dominican Fathers and the Passionist Fathers. The Commission for Catholic missions among the colored people and Indians carries on the work indicated by its title and the Catholic Church Extension Society seeks to develop the missionary spirit and to assist in the erection of parish buildings for needy communities. The philanthropic work of the church is highly developed. The most prominent single organization is a society of laymen, the Society of St. Vincent de Paul, with main offices in Paris and branches in all parts of the world. The Roman Catholic Church in the United States carries on no distinctively foreign missionary work, but contributes to the work done in various fields by the different orders and societies. The principal medium is the Society for the Propagation of the Faith with headquarters in France and a number of branches in the United States.

**EUCCHARISTIC CONGRESS.** The most important event in the history of the church during 1910 was the Eucharistic Congress held in Montreal September 7-11. Its official title is the International Catholic Eucharistic Congress. This is the first time that this Congress has ever assembled in America. Cardinal Vannutelli was present as Papal Legate, and Cardinal Logue came from Ireland to attend the Congress. Cardinal Gibbons represented the highest Catholic authority in the United States. Great preparations had been made in Montreal for the Congress and great crowds of people were drawn to the city for its sessions. It met for organization in the great Cathedral of St. James and subsequent meetings were held in other church buildings. Sectional meetings for Irish, French, Italian and other branches of the church were provided. One of the sessions of the Congress was addressed by Sir Wilfrid Laurier, the Canadian Premier. At an imposing mass in the open air over 5000 priests and prelates and many thousands of people were present. It was estimated that nearly 200,000 members of Catholic churches were gathered in the city during the sessions of the Congress, while bishops and archbishops to the number of 135

came to Montreal from all parts of the world.

**CONSECRATION OF ST. PATRICK'S.** In the same month, St. Patrick's Cathedral in New York City was consecrated with impressive ceremonies, in which Cardinal Gibbons, Cardinal Logue and Cardinal Vannutelli, as well as many other distinguished prelates who had attended the Eucharistic Congress, took part. The Cathedral was dedicated in 1879 but could not be consecrated until it was free from debt. Final payment on the debt was made in 1910.

**THE CHURCH IN FOREIGN COUNTRIES.** The modification of the Coronation Oath taken by George V, of Great Britain, by which objectionable matter relating to the Roman Catholic Church was omitted, was the cause of great satisfaction to Roman Catholics and Protestants throughout the world. The controversy between the Vatican and Spain, which forms the most important part of the year's history in the latter country, will be found discussed in the article **SPAIN**. In Germany the government seemed disposed to defend the scientific freedom of all professors connected with state universities and in deference to this attitude the Vatican has deemed it wise to abate, with regard to them, some of the restrictive and odious measures imposed on Catholic professors elsewhere.

In France, one of the most interesting events of the year was the condemnation by the Vatican of the movement called *Le Sillon*, represented by a newspaper of that title. The original purpose of this association was to train a body of thinking men able to exert a certain moral influence and to lead a vigorous social propaganda. Its activities have included the foundation of people's institutes and the holding of public meetings. At the time of its founding the clergy showed itself enthusiastic over the idea. On the occasion of the second national congress of the study-circles of people's institutes, *Le Sillon* received from Cardinal Rampolla, Secretary of State to Pope Leo XIII, and from other prelates, letters praising the work. The programme of the movement includes legislative action, economic action and moral action. Through some of its members *Le Sillon* has exerted a deep influence on labor exchanges and it has fought the sweating system, night work in bakeries and other abuses of the laboring classes.

Opposition to the work of the organization came from Royalist endeavors to discredit it in the minds of Catholics by questioning the orthodoxy of its members and its attitude toward the religious hierarchy. The *Sillonists* replied that, while the organization had been founded and was directed by faithful Catholics, it was nevertheless a lay organization aiming at temporal results. In spite of this the attacks continued and *Le Sillon* was finally condemned by the Vatican. For other events in France, see **FRANCE**.

**MODERNISM.** During the year there were issued from the Vatican two Pontifical documents concerning Modernism. The first of these, the *Edita* of May 26, renewed previous condemnation of certain books; the *Sacrorum Antistitum* on September 1 inveighed against modernist obstinacy and specious cunning. After quoting the practical measures prescribed in the Encyclical *Pascendi*, the Pope urged their execution but at the same time made new directions concerning the forma-

tion of the clergy in seminaries and religious houses. Candidates for higher orders, newly appointed confessors, preachers, parish priests, canons, beneficed clergy, the bishop's staff, Lenten preachers, officials of the Roman congregations or tribunals, superiors and professors in religious congregations, all are obliged to swear according to a formula which reprobates the principle of modernistic tenets. The list of the documents issued by the Pope relating to Modernism is given as follows in Volume 10 of the *Catholic Encyclopædia*, published in 1910: First, the Pope's Address of April 17, 1907, to the newly created cardinals. This is a résumé which anticipates the Encyclical *Pascendi*, second, a letter from the Congregation of the Index, April 29, 1907, to the Cardinal Archbishop of Milan with regard to the review, *Il Rinnovamento*. This letter mentions the names of Fogazzaro, Father Tyrrel and other modernists; third, a letter from Pius X sent on May 6, 1907, to the archbishops and bishops, and to the patrons of the Catholic Institute of Paris. This letter urges the restoration of sacred studies and of Scholastic philosophy. Fourth, the decree *Lamentabili* of the Holy Office, July 3 and 4, 1907, condemning sixty-five distinct propositions. Fifth, the injunction of the Holy Office of August 28, 1907, which, with a view to remedying the evil of Modernism, enjoins certain prescriptions upon bishops and certain superiors of religious orders. Sixth, the Encyclical *Pascendi*. Seventh, three letters of the Cardinal Secretary of State October 2, 10 and November 5, 1907, on the attendance of the clergy at secular universities. Eighth, the condemnation by the Cardinal Vicar of Rome of the pamphlet *Il programma dei Modernisti* and a decree of October 29, 1907, declaring the excommunication of its authors with special reservations. Ninth, the decree *Motu Proprio* of November 18, 1907, on the value of the decisions of the Biblical Commission and on the decree *Lamentabili* and the Encyclical *Pascendi*. These two documents are again confirmed and upheld by ecclesiastical penalties. Tenth, the address by the Consistory of December 16, 1907. Eleventh, a decree of the Holy Office on February 13, 1908, in condemnation of the two newspapers *La Justice Sociale* and *La Vie Catholique*. The documents issued in 1910 have already been referred to above.

**ROMANCE PHILOLOGY.** See **PHILOLOGY**.

**ROME, EXCAVATIONS IN.** See **ARCHÆOLOGY**.

**ROOSEVELT, THEODORE.** Twenty-sixth President of the United States. Before his retirement from the Presidency in 1909 Mr. Roosevelt announced that on the expiration of his term he would go to Africa on a hunting expedition, and for the purpose of collecting specimens in natural history. The expedition was to be known as the Smithsonian African Expedition; but no part of its expenses were appropriated, either from the funds of the Institution or from any government appropriation. They were paid entirely by private subscription. During Mr. Roosevelt's last months in the White House preparations were made for the expedition so that at the time of his retirement on March 4, 1909, they were practically complete. He chose to accompany him his son Kermit Roosevelt, Dr. Edgar A. Mearns of the United States Army, Edmund Heller, and J. Alden Loring. A short time previously Mr. Roosevelt had made the an-

nouncement that he had joined the staff of the *Outlook* magazine as Contributing Editor and that hereafter all his official utterances would be made through that periodical. He had also contracted with *Scribner's Magazine* to publish a series of articles on the African expedition, to be known as *African Game Trails*.

He sailed with his companions from New York City on March 24th and after a brief stop in Naples reached Mombasa, British East Africa, on April 21, 1909. Here he spent eight months collecting the specimens native to that region and afterwards proceeded through Uganda and down the White Nile to Khartum, where he arrived on March 14, 1910. During his stay in the hunting fields, field work was energetically prosecuted in all parts of the regions visited, and ample notes were made of its fauna. The collections gathered by Mr. Roosevelt and his assistants will be found described in the article **SMITHSONIAN INSTITUTION**.

Mr. Roosevelt spent several days at Khartum where, under the guidance of Slatin Pasha, the governor, he inspected the places of historic and general interest. Here also he made an address to the soldiers in the garrison and others. Leaving this city he reached Cairo on March 24. Here great preparations had been made for his arrival both by the British officials and the people. On March 28 he addressed the students of the University of Egypt. He strongly commended the British rule and denounced the murder of Boutros Pasha, the Premier, which had occurred several weeks previous to this.

He left Egypt in the latter part of March and on April 1 reached Rome. Here an unfortunate incident occurred as a result of a misunderstanding between him and representatives of the Pope. Mr. Roosevelt had several weeks before written to the Papal authorities requesting an interview with Pius X. On March 25, the American Ambassador at Rome sent a dispatch to Mr. Roosevelt then at Cairo which contained the following communication from the Rector of the American College in Rome: "The Holy Father will be delighted to grant an audience to Mr. Roosevelt on April 5 and he hopes nothing will arise to prevent it, such as the much regretted incident which made the reception to Mr. Fairbanks impossible." This allusion was to the fact that Vice-President Fairbanks during a visit to Rome had made an address before the Methodist Episcopal Mission, between which and the Papal authorities there has been for years a feeling of bitter hostility, due, it is alleged by Catholic authorities, to attempts on the part of the Methodists to proselyte among adherents of the Roman Catholic Church. The Ambassador accompanied this dispatch with another in which he implied that the communication from the Vatican contained a covert threat. Mr. Roosevelt at once replied as follows: "It would be a real pleasure to me to be presented to the Holy Father, for whom I entertain a high respect, both personally and as the head of a great church. I fully recognize his right to receive or not receive whomsoever he chooses for any reason that seems good to him and if he does not receive me I shall not for a moment question the propriety of his action. On the other hand, I in turn must decline to make any stipulations or to submit to any conditions which in any way limit my conduct. I trust that on April 5 he will find it convenient to receive me." On receiving this the Ambassador at

once sent a final dispatch which ended by quoting the Rector of the American College at Rome as saying that "an audience could not take place except under the understanding expressed in the former message." This, so far as Mr. Roosevelt was concerned, terminated the affair, but it was made the subject of much newspaper discussion, which in general supported the position that he had taken. In the United States his conduct was approved alike by Roman Catholics and Protestants. It may be mentioned that Mr. Roosevelt had received no invitation from the Methodist mission to make an address before it, nor had he expressed any desire or intention to make such an address. As a result of these complications, the intended reception to Americans at the Embassy was omitted. On April 4, Mr. Roosevelt was the guest of the King and Queen of Italy.

Leaving Italy, he was received on April 15 by Francis Joseph, Emperor of Austria-Hungary, at Vienna. He was received in this city with the same enthusiasm which was displayed on his arrival in other cities during the entire tour. He visited Budapest where he was ardently greeted by the Hungarians.

Arrangements had been made for the delivery of a formal address at the Sorbonne in Paris on April 23. This address was entitled "Citizenship in a Republic" and embodied with great frankness Mr. Roosevelt's well known views of civic and social duties. It was well received in France and throughout Europe generally. On April 29, Mr. Roosevelt was the guest of the Queen of Holland and on May 2 he journeyed to Copenhagen where he was entertained by the Danish Crown Prince. On May 4 he was the guest of the King and Queen of Norway and on the following day spoke on the subject of International Peace, at Christiania. This was the Nobel Prize address.

After leaving Norway he went to Berlin where he was the guest of the German Emperor. Mr. Roosevelt, in company with the Emperor, viewed manoeuvres of the German army, an honor rarely vouchsafed to any foreigner. On May 12 he lectured before the Berlin University on "The World Movement." The death of King Edward which occurred on the day following the Christiania address necessitated a change in the plans for the entertainment of Mr. Roosevelt in Berlin and London. In consequence of his own request, the German Emperor cancelled the arrangements for all official functions in his honor and received him privately.

Great preparations had been made for a notable reception in England, but the death of King Edward put an end to this. Mr. Roosevelt arrived in England on May 16 and at once visited the bereaved Queen and King George. Shortly after his arrival he received a request from President Taft to act as official representative for the United States at King Edward's funeral. This he at once accepted, and he attended the services as a formal representative of his country. On May 26 he received the degree of Doctor of Laws from the University of Cambridge, where he made a brief address. The most notable event of his stay in England, however, was an address delivered on May 31 at the Guildhall on the occasion of his receiving the freedom of the city. The address was devoted almost entirely to the subject of Great Britain's responsibilities in Egypt, and the frankness of the utterances was startling alike to his auditors

and to the British public at large. His advice and admonitions, however, were for the most part received in good part (see article *EGYPT, History*). On June 7 he delivered the most important of his formal addresses at Oxford University. This was entitled "Biological Analogies in History" and it was a remarkable illustration of Mr. Roosevelt's versatility. It showed evidences of profound study and a wide acquaintance with all that had been previously written bearing on the subject. Shortly after this, Mr. Roosevelt's stay in England terminated and he sailed for the United States.

As his arrival in his own country drew near, the question of his attitude toward political questions which were at that time before the people became the chief topic of discussion on the part of the public and the press. In particular, his attitude toward President Taft and the administration was a matter of interest. He had declared that his interest in politics was only that of a private citizen and that he intended to take no prominent part in active politics. During his stay in Italy, however, he had been visited by Gifford Pinchot, the deposed Chief of the Forestry Bureau and one of Mr. Roosevelt's most intimate friends. It was assumed that Mr. Pinchot had told his side of the forestry controversy, and although Mr. Roosevelt had made no discussion of the subject, it was well known that his sympathies were with Mr. Pinchot's policies of conservation.

Mr. Roosevelt arrived in New York City on June 18. Here he received a remarkable ovation. He was welcomed by the officers of the city, and hundreds of thousands of people gathered to welcome him back to his own country. In response to a speech of welcome by Mayor Gaynor he made a brief reply. He went at once to his home at Oyster Bay, L. I. Mr. Roosevelt made a visit to President Taft who was then at his summer home at Beverly, Mass., shortly after his arrival in New York. This visit was a matter of a great deal of anticipation as an evidence of the relations which existed between the two men. Although nothing definite was known to indicate that their feeling of cordiality toward each other had changed, yet the well known sympathy which Mr. Roosevelt felt and had displayed toward certain of those who were opposed to the President's policies created the general impression that relations between them had become somewhat strained. Those who witnessed the meeting saw no lack of apparent warmth of feeling.

Mr. Roosevelt's declared intention to keep out of active politics was brought to a sudden termination. He attended the annual commencement at Harvard University in June and there he met Governor Hughes who urged him to give a public expression sympathetic to the latter's attempt to have direct nomination laws passed through the legislature. (See *NEW YORK*.) Mr. Roosevelt did this and from this time until election day in November he was actively engaged in the campaign either in consultation with politicians of all types or in making aggressive speeches in several States. His activity in politics is a part of the political history of the year and it is related in the political histories of the different States, especially New York, Connecticut, Ohio, Indiana, and Kansas. Mr. Roosevelt in the political campaign was found for the most part on the side of the progressive element of the party. In September he

made a tour through the West, speaking in aid of Senator Beveridge of Indiana and making speeches in other States. He attended a frontier celebration at Cheyenne, Wyoming. In Kansas he spoke on broad national policies; in Denver on the problems of lands, forests and natural resources; and in St. Paul, where he attended the Conservation Congress, he spoke on the phases of public policy which have to do with the country's treatment of its own Federal domain. As a result of a speech made at Osawatimie, Kansas, the phrase "new nationalism" became current as a statement of national policies which Mr. Roosevelt believed should be carried out (see *NEW NATIONALISM*). He finished the campaign in New York State where he made a number of addresses in favor of the Republican nominee, Henry L. Stimson. The results of the campaign as they concern Mr. Roosevelt will be found discussed in the section *Campaign and Elections of 1910* in the article *UNITED STATES*. Following the election he returned to his home in Oyster Bay and continued his work as a contributing editor of the *Outlook*. His book, *African Game Trails*, was published during the year.

**ROOSEVELT DAM.** See *RECLAMATION*.

**ROOT, ELIHU.** See *NEW YORK, Politics and Government*.

**ROSASITE.** See *MINERALOGY*.

**ROSEBERRY, Lord.** See *LITERATURE, ENGLISH AND AMERICAN, Biography*, and *GREAT BRITAIN, History*.

**ROSNY, M.** See *FRENCH LITERATURE*.

**ROSS, E. A.** See *LITERATURE, ENGLISH AND AMERICAN, Political and Social Science*.

**ROSS, MRS. JANET.** See *LITERATURE, ENGLISH AND AMERICAN, Biography*.

**BOSTAND, EDMOND.** See *DRAMA*.

**ROTARY ENGINE.** See *STEAM ENGINE*.

**ROWING.** The intercollegiate regatta held on the Hudson River, near Poughkeepsie, in June, resulted in another Cornell triumph. For the second successive year the Ithacan crews captured all three events. The magnificent showing made by Pennsylvania, which finished second in the 'varsity eight-oared race, was a surprise to the experts most of whom had figured that Columbia would prove to be Cornell's most dangerous rival. The bitterness of the struggle between Cornell and Pennsylvania for first honors is shown by the fact that the Cornell crew crossed the finish line only two seconds ahead of Pennsylvania. The winning crew was composed of C. N. Seagrave, bow; L. D. Stimson, 2; C. W. Wakely, 3; W. M. Aitchison, 4; S. H. Sutton, 5; P. L. Day, 6; S. Names, 7, and E. F. Bowen, stroke. The time of the various eights follows: Cornell, 20 minutes 42½ seconds; Pennsylvania, 20 minutes 44½ seconds; Columbia, 20 minutes 54½ seconds, Syracuse, 21 minutes 1½ seconds; Wisconsin, 21 minutes 15½ seconds. In the 'varsity four-oared event Cornell and Syracuse were the contestants for first place, the former pulling away in the last half of the race. The order of finish and the times of the various crews were: Cornell, 11 minutes 37½ seconds; Syracuse, 11 minutes 43½ seconds; Columbia, 11 minutes 48½ seconds; Pennsylvania, 12 minutes 22 seconds. Cornell's third victory was in the freshmen eight oars, the Ithacan crew covering the two miles in 10 minutes 40½ seconds. The Columbia youngsters were second, their time being 10 minutes 53½ seconds and Syracuse finished last in time only two seconds slower, Wisconsin finished last.

The annual races between the Harvard and Yale crews were held as usual on the Thames River, near New London, Conn. Harvard repeated its success of the previous year by making a clean sweep of all the events. In the 'varsity eight oars Harvard for the third year in succession was the victor. The Yale 'varsity made a very poor showing in 1910, being beaten by ten lengths. Harvard's time 20 minutes 46½ seconds was four seconds slower than Cornell's in the same event on the Hudson. Yale covered the four miles at 21 minutes 4 seconds. The winning crew were R. Whitney, bow; G. F. Newton, Jr., 2; G. O. Metcalf, 3; L. Withington, 4; E. C. Bacon, 5; A. Strong, 6; J. E. Wald, 7; R. C. Cutler, stroke. The freshmen eight-oared event was the closest of the three races, Harvard's time being 11 minutes 54½ seconds and Yale's 12 minutes 2 seconds. In this race as well as in the 'varsity eight oars the winner's time was slower than Cornell's for the same event. The 'varsity four oars resulted in an easy victory for Harvard, whose time was 13 minutes ½ second.

Of the dual college regattas held during the year the one to attract the most interest was that between Cornell and Harvard. The race took place on the Charles River over a two-mile course, Cornell being the winner in 11 minutes 23 seconds. In other dual races Harvard defeated Annapolis at Annapolis over a two-mile course, the winner's time being 11 minutes 17 seconds; Annapolis defeated Columbia and Syracuse over the same course, the navy crew making its best time 10 minutes 42½ seconds against Columbia. The Cornell freshmen defeated the Harvard freshmen on the Charles River, covering the two miles in 11 minutes 10 seconds. Two college regattas were held in the West. Stanford University defeated the University of California at Oakland and the University of Wisconsin defeated the University of Washington on Lake Mendota, Wis.

The thirty-eighth annual regatta of the National Association of Amateur Oarsmen was held on the Potomac River August 12-13. The only new American record established was in the quarter-miles race in single sculls which was won by William Mehroff of the Nassau Boat Club of New York in 1 minute 24¾ seconds. The winners of other events were: International fours, Arundel Boat Club of Baltimore; intermediate fours, Argonaut Rowing Club of Toronto; junior eights, Detroit Boat Club; senior doubles, Frederick Fuessel and Frederick Shepherd of the Harlem Boat Club of New York; senior eight-oar shells, Ottawa Rowing Club.

The eighth annual regatta of the National Rowing Association, popularly known as the American Henley, took place on the Schuylkill River on May 21 over a course of 1 mile 550 yards long. The winners of the more important events and the time made in each follow: First four oared shells, University Barge Club of Philadelphia, 8 minutes 3½ seconds; junior collegiate eight-oared shells, Harvard, 7 minutes 9½ seconds; first single sculls, Fred Shepherd of the Harlem Boat Club of New York, 8 minutes 54½ seconds. In the forty-fourth annual regatta on the Harlem River the Wahnetah Boat Club won the senior eight-oared shells and the senior single sculls race went to Fred Shepherd of the Harlem Boat Club.

Magdalen College, Oxford, won the Grand Challenge Cup in the Henley Regatta, held at

Henley, England. The other winners at the Henley meeting were: Steward's Challenge Cup, Winnipeg Rowing Club of Toronto; Thames Challenge Cup, Anglian Boat Club; Senior Goblets, Leander Rowing Club; Visitors' Challenge Cup, Trinity Hall, Cambridge; and the Diamond Challenge Sculls, W. D. Kinnear of the Kensington Rowing Club.

The sixty-seventh annual Oxford-Cambridge boat race was won for the second year in succession by the Oxford crew, whose time for the four miles was 21 minutes 14 seconds. The record for the event made by Oxford in 1893 and equalled by Cambridge in 1900 is 18 minutes 47 seconds.

**ROYAL ACADEMY.** See PAINTING.

**ROYAL COMMISSION ON TRADE RELATIONS.** See CANADA.

**RUBBER.** The high price of rubber maintained during the year 1910 led to a considerable curtailment in the output of the manufacturing industry in which tires now figure most prominently. The prices of all manufactured articles were advanced to correspond with the changed conditions in the crude rubber market. The price of the best grade of Pará rubber in New York was \$2.90 a pound in April, 1910, as compared with \$1.26 in April of the previous year at 84 cents in April, 1908. In London Ceylon rubber inferior to the South American sold for \$3.10. At the end the year a price of \$1.35 per pound, a substantial decline over that of the late spring and lower than at the end of 1909, when it was \$1.80, was reached and supplies of crude rubber were coming into the primary markets in full quantities so that the Brazil crop of about 40,000 tons for 1910-11 was anticipated which would be about the same output as in 1909-10. From the Far East a large increase was expected and the output was estimated at about 15,000 tons.

About 60 per cent. of the world's output now goes to the United States and of this about one-half is put into automobile tires. The increase in the consumption of rubber in the United States has been at a greater rate than the increase in population. The imports of crude india rubber, not including gutta-percha, jelutong, balata, or the like for the year 1910 and previous decades, as compared with the population have been as follows:

	1910	1900	1890
Population .....	91,972,266	75,994,575	62,947,714
Imports (pounds).....	101,078,825	49,397,138	33,712,089

The exports to foreign countries of India rubber manufactures have increased from \$1,236,443 to \$9,060,895 in twenty years.

Arrivals of crude rubber at Pará (including Pará) during the first half of four crop seasons, or from July 1, to December 30, have been as follows: 1910 (to December 17, 1910), 14,610 tons; 1909, 16,715 tons; 1908, 15,735 tons; 1907, 14,240.

**RUBBER, ARTIFICIAL.** See CHEMISTRY, Industrial.

**RUBBER, SYNTHESIS OF.** See CHEMISTRY, Industrial.

**RUBIDIUM.** See ATOMIC WEIGHTS.

**RUCKER, DANIEL HENRY.** An American army officer, died January 6, 1910. He was born in Belleville, N. J., in 1812. In 1837 he was appointed second lieutenant of the First Dragoons and was promoted to be first lieutenant in 1844

and captain in 1847. He served in the Mexican War and throughout the Civil War rising to the rank of brevet major-general. He was honorably mustered out of the volunteer service in 1868. In 1882 he was appointed brigadier-general and quartermaster-general in the regular army. He retired at his own request, in 1882. He was the oldest surviving army officer at the time of his death.

**RUEBEL BRONZE.** See CHEMISTRY.

**RUEF, ABRAHAM.** See CALIFORNIA.

**RULES, HOUSE.** See UNITED STATES, Congress.

**RUM.** See LIQUORS, FERMENTED AND DISTILLED.

**RUMANIA.** A constitutional monarchy composed of the (formerly Turkish) Moldo-Wallachian provinces and the territory of the Dobruja. Capital, Bucharest.

**AREA AND POPULATION.** Area, 50,720 square miles. Population (1899), 5,956,990; estimated, 1905, 6,480,300; 1907, 6,684,265; 1908, 6,771,722. Births (1908), 272,850; deaths, 185,393; still-births, 6963; marriages, 61,499; divorces, 2384. Over 50 per cent. of the marriages show the women to be between the ages of sixteen and twenty. Bucharest has 300,000 inhabitants; Jassy, 80,000; Galatz, 66,000.

**EDUCATION.** The census of 1899 returned 78 per cent. of the population over seven years of age as unable to read or write. Since then considerable progress has been made. Primary education is compulsory. Official statistics for the year 1904-5 are as follows: State-supported schools, 4851, with 10,525 teachers and 559,934 pupils; private, 436, with 2261 teachers, 30,856 pupils. Secondary schools 72, with 1231 teachers, 16,787 pupils. In industrial and agricultural schools, 3729 students. University of Bucharest, 85 professors, 3443 students; University of Jassy, 63 professors, 629 students.

**AGRICULTURE, ETC.** Of the total area, 5,974,798 hectares were under cultivation in 1908 as follows: 5,133,459 under cereals; 36,228 under textile and oleaginous plants; 90,022 under legumes and tubers; 110,240 under grasses and forage crops; 428,474, natural pasture; 70,267, plum orchards; 86,337, vines; 19,771, industrial plants. The areas in hectares under different crops, and the production in hectolitres are given for two years as follows:

	1907	1908
Corn .....	1,928,592 ha. 20,289,516 hl.	2,020,315 ha.
Wheat .....	1,714,317 ha. 14,884,307 hl.	1,801,685 ha. 19,316,118 hl.
Rye .....	146,659 ha. 899,947 hl.	147,052 ha. 930,421 hl.
Barley .....	509,693 ha. 7,069,858 hl.	620,190 ha. 4,536,399 hl.
Oats .....	352,468 ha. 6,287,334 hl.	490,338 ha. 6,065,427 hl.
Millet .....	130,360 ha. 869,273 hl.	53,461 ha.
Rape .....	16,691 ha. 53,656 hl.	13,038 ha. 91,333 hl.
Vines .....	82,960 ha. 967,527 hl.*	86,337 ha.
Plums .....	71,503 ha. 661,104 qu.†	70,267 ha.

\* Value, 32,851,403 lei. † Value, 6,077,543 lei.

The livestock was valued in 1900 at 462,740,000 lei. Livestock raising has since then declined on account of the closing of the Austro-Hungarian frontier to exports of Rumanian cattle. Silk-worm culture was carried on in 1907 in 55,101 breeding establishments; weight of

fresh cocoons produced, 438,057 kilograms. State forests (1905), 1,069,702 hectares; revenue (1899-1905), 34,279,120 lei. Private forests, 1,492,841 hectares. Fishing has progressed under protection; catch (1907-8), 29,876,415 kilos.

The investigations in 1907 by the Ministry of the Interior into agricultural conditions (investigations instigated by the agrarian troubles of that year) have resulted in legislation looking to the amelioration of the condition of the peasantry.

The petroleum industry is next in importance to agriculture. Total output of crude oil in 1905, 641,070 metric tons, valued at 20,508,435 lei; 1906, 890,888 tons, 33,856,044 lei; 1907, 1,142,448 tons, 46,840,388 lei. Estimate for 1908, 1,147,727 tons; for 1909, 1,296,403 tons. Output of coal mines (1906-7), 128,413,215 metric tons; 1905-6, 144,323,015. Salt (a government monopoly) mined in 1906-7, 124,399,514 kilos; in 1905-6, 115,680,644. Flour mills (1907-8), 144.

COMMERCE. Total imports and exports for three successive years are given in lei as follows:

	1906	1907	1908
Imports .....	422,114,125	430,590,115	414,058,479
Exports .....	491,360,178	554,018,631	379,430,871

Imports for home consumption and exports of domestic products are detailed for 1908 in the following table:

Imports	1908 Lei	Exports	1908 Lei
Metals, etc. ....	100,197,161	Cereals, etc. ....	282,446,298
Textiles, etc. ....	74,421,205	Petroleum, etc. ....	38,593,595
Wool, hair, etc. ....	37,833,395	Wood, etc. ....	26,478,038
Machinery ....	37,561,084	Vegetables ....	11,750,491
Clothing ....	21,156,435	Animal prods. ....	6,920,437
Hides, etc. ....	16,533,908	Live animals. ....	2,632,863
Silks, etc. ....	12,537,981	Fruits .....	1,333,985

Germany contributed imports amounting to 140,810,359 lei, and received exports valued at 24,566,838; Austria-Hungary, 94,967,719 and 25,989,703; Great Britain, 66,770,416 and 40,379,521; France, 23,288,168 and 27,789,383; Italy, 21,540,120 and 34,378,705; Belgium, 12,921,976 and 105,770,889. Vessels entered (1909), 30,649, of 9,128,030 tons; cleared, 30,572, of 9,123,388.

COMMUNICATIONS. Length of railways (1909), 2054 miles (State, 1980); receipts for the year 1907-8, 83,358,576 lei; expenditure, 49,676,098; total expenditure to 1905, 773,315,048. The European Commission of the Danube, having its headquarters at Galatz, has an average annual revenue of £80,000 derived exclusively from taxes on shipping. Length of telegraph lines (1907-8), 4756 miles; wires, 13,190; number of offices, 3047. Telephone lines, 19,322 miles; wires, 29,845. Post-offices, 3280.

FINANCE. The monetary unit is the leu, valued at 19.3 cents. The revenue and expenditure (including railway and other budgets) for three successive years are given in lei below:

	1908-9	1909-10	1910-11*
Revenue .....	411,011,035	435,685,322	461,079,942
Expenditure .....	408,741,268	428,648,945	461,079,942

\* Estimate.

The principal sources of revenue and items of expenditure are estimated for 1910-11 as follows (in thousands of lei):

	1000 lei.	Expenditure	1000 lei.
Revenue	1000 lei.	Finance .....	197,628
Public services ..	112,639	Public works ....	81,664
Indirect taxes ...	73,330	War .....	61,175
State monopolies. .	67,460	Interior .....	46,388
Finance .....	66,254	Ed. & Worship ..	44,074
Direct taxes .....	43,880	Justice .....	10,534
State domains ...	27,044	Agriculture, etc..	7,432
Stamps, etc. ....	26,000		

Public debt, April 1, 1910, 1,553,152,527 lei. Capital and reserves of the National Bank of Rumania, December 24, 1909, 39,055,000 lei.

ARMY. Military service is compulsory between the ages of 21 and 42. Seven years are spent in the active army, 10 in the reserve and 4 with the militia. In the active army the men in the infantry serve two years with the colors and five on leave; for the other arms three years are spent with the colors. Considerable modification in the organization of the army was effected by the budget of 1910-11. The post of inspector-general of the army was created to be filled by H. R. H. Prince Ferdinand, who retained at the same time his duties as inspector-general of cavalry. A new army corps, the Fifth, was organized to be situated at Constanza and to consist largely of reserve battalions, but with full cadres and staffs. By the new reorganization all the chasseur and infantry battalions were to have four companies, one of which would be a company cadre. There were 36 infantry regiments, each of three battalions and a dépôt company; nine battalions of chasseurs of four companies plus a dépôt company and two reserve battalions were being created for the 35th and 36th regiments. The cavalry regiments were organized into four squadrons and one dépôt squadron, with the exception of the Escort Regiment, which had but three squadrons and one dépôt squadron. There were 10 Roshiori cavalry regiments grouped by twos to form brigades and 10 Calarashi regiments. There were 18 regiments of artillery grouped into 9 brigades and three groups of reserve artillery to serve as the nucleus for the reserve divisions of artillery. In all there were 72 field batteries, 18 battery cadres, 7 howitzer batteries, and 9 reserve batteries, making a total of 106 batteries with 18 dépôt batteries. There was also one group of horse artillery of 4 batteries, designated to form the artillery for the cavalry division. There were five battalions of engineers and one of fortress pioneers each of three companies and a dépôt unit, and various other technical troops such as railway, wireless, automobile, etc., divisions. The budget for 1910-11 provided for an increased number of troops to be called out amounting to 96,000 men in all, 53,000 of which were to serve for 10 days during the manœuvres and 43,000 for 22 days' training in camps of instruction. In 1910 the effective strength on a peace basis was given at 3942 officers, 658 civil employees, 982 military cadets, 81,540 men, 17,978 horses and 452 cannon. The war effective was 7600 officers, 280,000 men, 86,000 horses, and 644 cannon.

NAVY. One protected cruiser of 1320 tons, a training-ship of 350, 7 gunboats, 6 coast-guard vessels, a screw despatch boat (240 tons), 6 first- and 2 second-class torpedo-boats, comprise the navy; in addition are 12 naval police boats, with 8 vedettes. Personnel, 143 officers, 2176 men. Two new armored cruisers are projected.

GOVERNMENT. The executive authority devolves upon the King, aided by a cabinet (8

members) and a prime minister. A Senate (120 members) and a Chamber of Deputies (183 members) constitute the legislative body. The present King, Charles I., was born April 20, 1839 (o. s.); married (1869) to Elizabeth, Princess von Wied (Carmen-Sylva); crowned, May 22, 1881. Heir-presumptive, Prince Ferdinand von Hohenzollern (nephew of Charles I.), born August 24, 1865. The Council of Ministers is composed as follows: Premier and Minister of the Interior, J. J. C. Bratiano; Instruction and Worship, Sp. Haret; Foreign Affairs, Al. G. Djuvara; Finance, E. Costinesco; Justice, T. Stelian; Public Works, B. G. Mortzun; Agriculture and Domains, Al. Constantinesco; Industry and Commerce, M. G. Orleano; War, Gr. Crainciano.

Some comment was occasioned by the report in the autumn of 1910 that an understanding had been reached with Turkey, whereby Rumania engaged in the event of war between Turkey and Bulgaria to mobilize her troops on the Bulgarian border. See *TURKEY, History*.

**RUNCIMAN, WALTER.** See *GREAT BRITAIN, Government*.

**RURAL DEPOPULATION.** See *AGRICULTURE*.

**RURAL SCHOOLS.** See *EDUCATION IN THE UNITED STATES*.

**RUSSELL, AGATHA.** -See *LITERATURE, ENGLISH AND AMERICAN, Biography*.

**RUSSELL, BERTRAND.** See *LITERATURE, ENGLISH AND AMERICAN, Philosophy and Religion*.

**RUSSELL SAGE FOUNDATION.** See *SAGE FOUNDATION*.

**RUSSIA.** An empire of northeastern Europe and northern Asia, extending from the Baltic to the Bering seas, and from central Europe and Asia to the Arctic Ocean. Capital, St. Petersburg.

**AREA AND POPULATION.** The area and the population in 1907 and 1908, according to the Russian Central Statistical Committee, are seen below:

	Sq. miles	1907	1908
European Russia...	1,862,524	111,279,500	113,841,000
Poland .....	49,018	11,138,700	11,360,900
Ciscaucasia .....	85,201	4,454,800	4,601,200
Trans.-Caucasia ..	95,402	6,199,100	6,307,200
Siberia .....	4,786,730	6,893,900	7,049,200
Steppes .....	710,905	2,856,100	2,927,900
Turkestan .....	400,770	5,856,400	5,961,600
Trans.-Caspian Province .....	213,855	405,500	415,700
Finland .....	125,784	2,925,300	2,968,600
Internal waters...	317,486	.....	.....
<b>Total .....</b>	<b>8,647,667</b>	<b>152,009,300</b>	<b>155,433,300</b>

Total population in 1897 (last census), 129,209,297 (Aryans, 100,331,516; Uralo-Altayans, 17,669,067; Jews, 5,070,205; Georgians, 1,352,535; other Caucasians, 1,091,782; Chinese, Japanese, Koreans, 86,113; Hyperboreans, 33,602; others, 5201). All following statistics, except when specifically indicated, are exclusive of Finland. For Finnish statistics, see *FINLAND*. Births (1904, the latest obtainable government figures) in all European Russia, exclusive of Finland, 5,539,174; deaths, 3,406,452; in Asiatic Russia, 874,311 and 542,775. Emigration in 1906, 139,050; 1905, 218,371; 1904, 128,211. No figures are obtainable in Russia for the number of Russians emigrating to the United States; but the United States Bureau of Immigration records 120,460 as the

number of persons whose last permanent residence was Russia entering this country during the fiscal year ended June 30, 1909 (Finns, 11,202; Jews, 39,150; Lithuanians, 14,595; Poles, 37,770; Russians, 9099; Germans, 7781; others, 863).

The population of the chief towns is given as follows: European Russia: St. Petersburg, 1,678,000; Moscow, 1,359,254; Warsaw, 756,426; Odessa, 449,873; Lodz, 351,570; Kiev, 319,000; Riga, 282,230; Kharkov, 173,989; Helsingfors (Finland), 117,317. Asiatic Russia: Baku, 179,133; Tiflis, 159,590; Tashkent, 155,673; Irkutsk, 70,000; Tomsk, 67,419.

**INTERNAL MIGRATION.** The opening up of Siberia by the Trans-Siberian Railway has led many thousands of Russian peasants to seek in that country some amelioration of the wretched conditions under which they exist at home. Up to 1906, only 60,000 persons altogether had settled in the new land. Since 1906, the average annual exodus has increased steadily. The permanent new settlers in 1907 are given at 415,287; in 1908, 637,608. During 1909, 619,000 emigrants left European Russia by the Siberian Railway. Total emigration from 1896 to 1907, 1,560,905.

**EDUCATION AND RELIGION.** Public elementary instruction is inadequately provided for, and 72 per cent. of the population above the age of nine are illiterate. The average per 1000 attending any school is 46.1. In the autumn of 1909 the rule concerning the admission of Jews to the universities was rigidly enforced. This rule fixes, on the basis of their proportion to the total population, the number of Jewish candidates for admission at 3 per cent. An official report gives the number of all kinds of public schools (1907) in the empire at 107,141, with a total attendance of 6,076,616 (primary, 5,505,454; middle, 329,739; high, 41,729; special, 199,694). The cities of St. Petersburg and Kronstadt, and the governments of Warsaw and Tiflis, are not comprehended in these figures. Private schools in the same year had 363,777 pupils; unclassified schools had 229,852. Elementary schools in 1906, 92,501; teachers, 170,894; pupils, 5,738,289. Universities (1908-9): Moscow, 9516 students; St. Petersburg, 8235; Kiev, 3000; Kharkov, 4537; Yuriev or Dorpat, 2918; Warsaw, 809; Kazan, 2902; Odessa, 3423; Tomsk, 780. A new university was created in 1909 at Saratov and another at Moscow (the Popular University) in 1908.

The emperor is head of the church (the Græco-Russian); he appoints to all offices, and transfers and dismissals are at his discretion. The Procurator of the Holy Synod has practically unlimited authority under the emperor. The religious liberty that was a prominent feature of the Manifestos of 1905 received a severe blow when the government bill was proposed in 1909 severely restricting Catholic observances. It was aimed at the Ruthenians in Poland who, forcibly converted to Russian Orthodoxy in 1875-6, had taken advantage of the Manifestos of 1905 to lapse into Roman Catholicism.

**AGRICULTURE.** The state and imperial family, towns, etc., own in European Russia 36.0 and in Poland 7.4 per cent. of the land; private owners, 23.7 and 46.6; the peasants, 32.3 and 41.6; unfit for culture, 8.0 and 4.4. The land owned by the peasants was forcibly sold to them after the liberation, at a price which they had no voice in fixing, and by a system of pay-

ments which becomes each year a more and more insupportable burden. Of the productive land 401,435,000 acres in European Russia (1905), 17,739,000 in Poland (1899) were arable; 191,473,000 and 6,059,000 under orchards, meadows, and pasture; 474,000,000 and 6,700,000 under forest, etc. Official figures (Central Statistical Committee) give the area sown to principal crops and the production for two years, for the empire:

	1909	1910
	1000 a.	1000 bu.* 1000 a. 1000 bu.*
Rye .....	71,970	896,835 71,020 1,182,214
Wheat .....	65,274	783,271 71,034 682,200
Barley .....	26,851	473,617 28,440 431,250
Oats .....	46,240	1,145,373 47,331 903,374
Corn .....	3,808	50,764a 3,660 61,112b
Flax .....	3,601	23,197†

\* 60-pound bushels of wheat, 56 of rye, 48 of barley, and 32 of oats.

† Seed. Fibre, 1,186,984,401 lbs.

a 1907. b 1908.

Area under beetroot (1908-9), 1,340,743 acres. Hemp (1907), 1,880,600 acres; seed, 25,524,700 poods; fibre, 30,450,200. Potatoes (1907), 10,305,000 acres; 1,747,705,300 poods; (1908) 1,798,902,000 poods. Tobacco (1908), 170,145 acres; 92,834 tons. Hay (1907), 87,127,000 acres; 2,026,223,600 poods; (1908) 2,958,625,600 poods. Cotton (1909), approximately, 11,000,000 poods. Livestock (1908): 29,285,000 horses; 43,204,000 cattle; 61,549,000 sheep and goats; 12,734,000 swine. A serious epidemic is reported among the cattle in Yaroslav and neighboring provinces; no reliable details are obtainable.

The profit derived from the state forests after all expenses were deducted amounted (1907) to 47,489,000 roubles.

**MINING AND METALS.** The development of the mining and metallic industries is shown in the following comparative table of production:

	1905	1906	1907
Gold, kilos .....	28,037	23,911	31,113
Platinum, kilos .....	5,158	5,685	5,301
Silver, kilos, .....	1,998	1,564	2,141
Lead, tons, .....	631	997	512
Zinc, tons, .....	7,786	9,928	9,955
Copper, tons, .....	8,278	9,162	13,037
Pig-iron, 1000 tons, .....	2,669	2,648	2,773
Iron and steel, 1000 tons, .....	2,291	2,231	2,364
Coal, 1000 tons, .....	18,447	21,459	24,537
Naphtha, 1000 tons, .....	6,610	7,229	7,675
Salt, 1000 tons, .....	1,813	1,703	1,836

Production in 1908 of pig-iron, 171,060,000 poods (1000 poods = 16.121,789 tons); of iron and steel, 145,375,000 poods; of Baku petroleum, 467,100,000 poods.

**MANUFACTURES.** Total number of manufacturing under state supervision in 1909, 14,710, employing 1,831,396 persons. Number of distilleries (1908-9), 2625; output of alcohol, 122,929,000 gallons (2610, with 115,106,000 in 1907-8). Sugar works (1908-9), 274; no statistics for production (278 in 1907-8; production, 76,046,000 poods). The Department of Finance has fixed the amount of total production of beet-sugar manufacturing for 1910 at 77,890,453 poods, plus 500,000 poods for export to Persia. The timber industry employs 80,000 hands (factories, mills, etc., 1428), and the value of the annual output approximates 155,000,000 roubles. Flax, hemp, and jute factories, 414; employees, 52,000; annual production (about), 73,000,000 roubles. Cotton spinning and weaving mills, 140; employees, 399,900; spinning spindles, 8,132,338; twist spindles, 322,145;

looms, 139,964; value of annual production (about), 607,000,000 roubles.

**COMMERCE.** The total trade of the empire is given, in roubles, for three successive years (1909 provisional):

	1907	1908	1909
Imps.: mdse. ....	847,365,000	912,659,000	788,448,000
Gold, silver .....	10,937,000	28,226,000	.....
Exps.: mdse. ....	1,053,010,000	998,250,000	1,366,373,000
Gold, silver .....	13,108,000	18,910,000	.....

Imports and exports by great classes for three years across the European frontier, the Black Sea frontier of the Caucasus, and to and from Finland (in thousands of roubles):

	1907	1908	1909
Foodstuffs .....	119,087	123,375	116,810
Raw materials.....	375,909	406,780	411,137
Animals .....	1,073	1,409	1,553
Mfd. goods.....	205,444	215,743	258,948
Total imports....	701,513	747,307	788,448

	1907	1908	1909
Foodstuffs .....	559,962	517,944	900,326
Raw materials.....	383,613	370,719	416,276
Animals .....	22,745	23,386	25,044
Mfd. goods.....	25,205	26,720	24,727
Total exports....	991,525	938,769	1,366,373

The bulk of Russian trade is carried on through the European frontier, the Black Sea frontier of the Caucasus, and with Finland; at these three frontiers 90 per cent. of the customs duties was levied in 1907. The details of the trade of the empire (not including the external trade of Finland) are given below for three years in thousands of roubles:

	1905	1906	1907
Imports:			
Across European and Black Sea frontiers.	536,900	589,900	671,200
From Finland.....	28,200	35,400	31,600
Across Asiatic frontier .....	70,000	175,400	144,600
Total .....	635,100	800,700	847,400
Gold and silver*....	63,502	37,963	10,937
Exports:			
Across European and Black Sea frontiers.	978,900	954,600	941,900
To Finland.....	39,000	47,300	49,700
Across Asiatic frontier .....	59,400	93,000	61,400
Total .....	1,077,300	1,094,900	1,053,000
Gold and silver*....	47,270	17,899	13,108

\* In money and ingots.

No complete details of imports are as yet available for 1909. The main articles of export are given for 1909 in thousands of roubles:

Exps.	1000 rs.	Exps.	1000 rs.
Cereals .....	748,298	Cottons .....	1,590
Eggs .....	62,212	Various .....	12,292
Dairy products..	48,404		
Sugar .....	15,338	Total mfrs.....	24,727
Fish & caviare..	5,859	Timber, etc....	126,092
Potatoes, etc....	.....	Naphtha, etc...	32,595
Tobacco, etc....	3,691	Flax .....	67,946
Meat .....	3,091	Oil cake .....	33,651
Alcohol, etc....	4,831	Oleag. mtrls....	25,779
Various .....	.....	Furs & leather.	34,982
		Hemp .....	12,431
Total foodstuffs.	900,326	Wool, hair, etc.	12,910
Live animals....	25,044	Raw metals....	29,538
		Various .....	40,352
Gutta percha....	4,821	Total raw, etc.	416,276
Metals mfd.....	3,327		
Woolens .....	2,697	Total exps.....	1,366,373

Cereal export for two years in thousands of poods and thousands of roubles:

	1908		1909	
	Poods	Roubles	Poods	Roubles
Wheat .....	89,600	112,900	314,200	384,100
Barley .....	161,300	132,600	219,200	165,900
Oats .....	29,400	24,500	74,700	61,800
Rye .....	24,900	26,000	35,500	34,100
Corn .....	36,500	28,600	41,100	31,100
Other products....	57,900	51,000	76,000	71,300
Total .....	399,600	375,600	760,700	748,300

Additional exports, across the Asiatic frontier: Sugar, in 1907, 12,198,000 roubles; in 1908, 12,870,000; in 1909, 12,328,000. Cottons, in 1907, 19,635,000 roubles; in 1908, 18,761,000; in 1909, 21,519,000. Additional imports, across the Asiatic frontier: Rice (from Persia), in 1907, 4,995,000 roubles; in 1908, 7,073,000; in 1909, 7,025,000. Raw cotton, in 1907, 8,507,000 roubles; in 1908, 7,503,000; in 1909, 9,534,000.

The most important countries of origin and destination are seen below (valuation in thousands of roubles, 1909 figures provisional):

	Imports		Exports	
	1908	1909	1908	1909
Germany .....	348,426	356,822	278,992	386,629
Great Britain.....	120,286	128,017	220,514	288,597
United States....	79,215	57,917	2,822	11,496
France .....	36,288	49,002	64,626	89,041
Finland .....	28,750	32,973	48,762	51,812
Aus.-Hun. ....	26,500	26,917	48,968	60,538
Netherlands....	11,496	18,109	93,815	189,207
D. E. Indies....		13,960		23
China .....	93,344	13,860	23,285	820
Italy .....	13,053	12,006	29,937	67,786
Egypt .....	13,794	10,008	3,638	3,129
Norway .....	8,361	8,542	5,752	8,106
Turkey .....	7,453	8,348	22,765	26,219
Denmark .....	8,764	8,269	31,491	36,748
Sweden .....	10,132	7,915	4,724	11,024
Belgium .....	8,073	6,687	34,392	64,321
Switzerland....		4,584		
Rumania .....	2,766	1,572	12,823	15,872
Others .....	95,978	22,940	70,944	54,995
Totals .....	912,659	788,448	998,250	1,366,373

SHIPPING. Vessels entered and cleared at all ports in the foreign trade of the empire during 1908 are shown in the following table:

	Entered		Cleared	
Ports	No.	1000 tons	No.	1000 tons
White Sea ....	949	670	918	669
Baltic .....	6,334	4,681	6,445	4,811
Black & Azov. 3,728	5,409	3,553	5,165	
Total .....	11,011	10,760	10,926	10,645
Coasting (1907)* .....	68,514	28,844		

\* Touching at ports of the White, Baltic, Black, Azov, and Caspian seas, the Danube, and the Pacific Coast.

The mercantile marine consisted, January 1, 1909, of 3363 vessels, of 700,959 tons (898, of 443,243 tons, steam; remainder sail).

COMMUNICATIONS. Length of railways open for traffic January 1, 1909, 44,595 miles (34,108 in European Russia, 10,487 in Asiatic Russia. Government lines, 32,675 miles; company lines, 10,472 miles; short local lines, 1448. Gross receipts (1907): European Russia, 710,783,000 roubles; Asiatic Russia, 78,623,000. Cost of construction to 1906: European Russia, 6,137,624,000 roubles; Asiatic Russia, 437,235,000.

Of the 77,721 miles of rivers, canals, and lakes in European Russia, 16,080 are navigable for steamers, 8598 for small sailing craft, 28,-

516 for rafts; of the 73,848 miles in Asiatic Russia, 21,544 are navigable for steamers, 8280 for small sailing craft, 25,065 for rafts. Total vessels forming the European Russian river fleet in 1908, 26,676. The Caspian Sea naphtha flotilla has 57 steamers and 263 sailing vessels.

Length of telegraph lines reported in 1908, 119,188 miles; of wires, 416,252; stations, 113,583; receipts (1907), 77,092,269 roubles; expenditure, 46,520,211. Post-offices, 14,311.

FINANCE. The revenue and expenditure, ordinary and extraordinary, for three years are given, in thousands of roubles, as follows (1909 estimate):

	1907	1908	1909
Revenue ordinary....	2,342,475	2,417,808	2,458,741
Revenue extraord....	143,043	200,860	136,308
Expenditure ordinary..	2,195,968	2,387,751	2,449,535
Expenditure extraord.	386,640	268,932	145,514

The budget estimates for 1910, voted by the Duma and the Council of the Empire and sanctioned by the emperor April 13 (26), 1910, balanced at 2,591,687,880 roubles. The principal estimated sources of revenue and items of expenditure in 1910 are reported in thousands of roubles as follows:

Rev.	1000 rs.	Expend.	1000 rs.
Direct taxes ..	198,246	Holy Synod....	34,195
Indirect taxes:		Imperial House	16,360
Spirits .....	40,214	Higher State	9,129
Tobacco .....	62,077	Institutions .	
Sugar .....	124,865	Communications .....	551,221
Naphtha, etc.	59,061	War .....	480,716
Customs .....	284,055	Finance .....	424,090
Duties .....	152,613	State debt....	406,812
State monopolies:		Interior .....	155,236
Mining .....	359	Navy .....	89,247
Mint .....	3,394	Agriculture, etc.	85,554
Telegs. and		Pub. Instruction	75,998
Telephs. ....	27,730	Justice .....	74,504
Posts .....	59,372	Commerce and	
Sale spirits....	178,768	Industry .....	38,619
State Domains:		Audit .....	10,197
Rents .....	32,846	State stud....	1,981
Cr. forests....	67,314	Foreign Affairs.	6,174
St. Rys. ....	568,154	Other .....	10,000
Cr. mines....	18,996	Total ord....	2,470,035
Cr. banks, etc	40,788		
From priv. rys. ....	2,281	Extraordinary:	
Sales Domains.	1,481	tion construc-	64,110
Redemp. pay'ts.	723	Ry. war ....	2,819
Ry. debts....	14,308	Various .....	54,734
Crown debts...	44,637	Total extrao.	121,653
Others .....	57,783	Total .....	2,591,687
Total ord....	2,580,062		
Extraord. ....	11,624		
Total .....	2,591,687		

The budget for 1911 was reported as balancing at 2,893,351,300 roubles. The total debt stood January 1, 1910, at 9,038,756,433 roubles. The Bank of Russia (a state and also a commercial bank) had January 8 (21), 1910: Assets, 2,694,066,000 roubles; liabilities, 2,467,358,000. The savings banks (1908) numbered 6710, with 6,210,238 depositors and deposits amounting to 1,149,243,582 roubles.

ARMY. In 1910, as a result of legislation by the Duma on December 29, 1909, appropriating an addition to the military budget of some \$50,000,000, there were numerous reforms in progress and a general reorganization. In October, 1910, it was announced that there had been formed three new army corps for the European army, one for the army in the Caucasus, and one for the army in Siberia. The army was increased by the creation of 174 new battalions

of infantry, making five additional divisions in Europe and a brigade of tirailleurs, 2 divisions of infantry in the Caucasus and 2 divisions of tirailleurs in Siberia. All the isolated bodies of tirailleurs were transformed or grouped into regiments of two battalions. The general tendency of the reorganization was to suppress the reserve organizations and increase the number of active units. The actual strength of the army was not increased for many of the reserve and fortress organizations were disbanded.

The various armies into which the Russian forces are divided vary considerably in their recruitment and organization. The European army follows in the main European models, but in the armies of the Caucasus, Turkestan, and Amur local conditions influence the organization and training. In the army in Europe and the Caucasus, including the Guards Corps, there are 32 army corps, and in addition 2 cavalry corps, 2 corps in Turkestan and 3 in Siberia.

The peace strength of the empire has been estimated as follows:

	Europe & Caucasus	Asiatic Russia
Infantry .....	627,000 men	83,000 men
Cavalry .....	116,000	14,000
Artillery .....	138,000	15,000
Engineers .....	34,000	8,000
Army services .....	34,000	8,000
Total .....	949,000	124,000

By including Cossacks and frontier guards this peace strength has been increased to 1,424,000 by some authorities, who add 60,000 men in Turkestan and Semirietshenk and 280,000 in Siberia.

The war strength of the Russian army is estimated at about 56,500 officers and 2,853,000 men, but all of this force which is the active army, of course, is not available in any one part of the empire. There is also a reserve estimated at 1,064,000 men, frontier battalion; and Cossacks, 142,000, while the Territorial Reserve of some 2,000,000, and Opoltschenié of 1,300,000 bring the available war strength of trained men to about 5,000,000, but it was an open question whether more than two-thirds of this number could be put into the field and in any event the mobilization would be slow.

The accompanying table shows the changes and increases following on the reorganization of the troops of the active army as regards the various districts:

District	Div. of Infantry	Div. of Cavalry	Div. of Infantry	Div. of Cavalry
Saint Petersburg ....	7½	2	9	2
Vilna .....	10½	2½	8½	2½
Varovie .....	12	9	10	7½
Kiev .....	10½	5	10½	5
Odessa .....	4½	1	4½	1
Moscow .....	7	1½	10	2
Kasan .....	.....	.....	5	1
Caucasus .....	5	3	7	4
Turkestan .....	3	2	3	2
Omsk .....	.....	.....	1	.....
Irkutsk .....	4	½	4	½
Amur .....	5	½	6	½

The Russian army was engaged in forming new artillery and engineer organizations, together with various technical corps, such as aeronautical and motor divisions. During the year there were regulations adopted for the uniforms of officers in which provision was made

for service uniforms very similar to those employed by other European nations.

**NAVY.** The number and displacement of war ships of 1000 tons and over, and of torpedo craft of 50 tons and over, built and building, in 1910, are placed at 211, of 401,463 aggregate tons, detailed as follows: 13 battleships (10,000 tons and over), of 213,200 aggregate tons; 2 coast-defense vessels (10,380); 7 armored cruisers (70,200); 7 cruisers over 6000 tons (46,460); 2 cruisers 6000 to 3000 tons (6300); 2 cruisers 3000 to 1000 tons (2680); 100 torpedo-boat destroyers (38,804); 45 torpedo boats (5697); 33 submarines (7742). The larger vessels of the effective navy in 1910 were:

Battleships, 8 (5 first-class), detailed as follows: 2 of 12,733 each, the *Erstaf* and the *Ioann Zlatoust*, completed in 1910; one of 13,516; one of 13,110; one of 12,480; one of 8880; one (1896) of 13,318; one (1896) of 10,280. Armored cruisers, 6 (all first-class): 3 of 7900 tons each, the *Pallada* and the *Bayan* completed in 1909, the *Makharoff* in 1908; one of 15,000 tons; one of 12,336; one of 12,130. There were building, in 1910, six first-class battleships, four of 23,000 and two of 17,400 tons each.

Naval appropriation in 1910, \$47,256,569; in 1909, \$58,480,012; in 1908, \$49,682,482; in 1900, \$42,101,212.

Of the four *Dreadnoughts* laid down in June, 1909, none has yet been launched; financial and administrative obstacles have come up continually to impede progress, and a special commission was appointed in August, 1910, to investigate naval abuses. The reorganization of the training scheme for officers was set in motion early in the year. Several million roubles have been appropriated for the works at Helsingfors and Sveaborg, the new headquarters for the Baltic Fleet.

**GOVERNMENT.** Russia is actually an autocracy, the entire legislative, executive, and judicial power being vested in an emperor whose will is supreme. Nominally the government is a constitutional hereditary monarchy, with an elective Duma (since 1905) and many legal provisions for public liberty and freedom of conscience, speech, assembly, and association. The members of the Duma are elected for five years and represent the governments, provinces, and seven largest cities. The Council of the Empire has equal legislative powers with the Duma. Special administrative boards exercise executive functions. The present Emperor of all the Russias, Nicholas II, was born May 6 (18), 1868; came to the throne October 20 (November 1), 1894; married November 14 (26), 1894, Princess Alexandra Alix of Hesse. Heir-apparent (Czarevitch), Grand-Duke Alexis, born July 30 (August 12), 1904. The heads of departments in 1910 were as follows: Premier and Minister of the Interior, P. A. Stolypine; Minister of the Imperial Household, Gen. V. B. (Baron) Fredericksz; Foreign Affairs, S. Sazonoff; War, Gen. W. A. Sukhomlinoff; Marine, Vice-Admiral E. A. Voyevodsky; Justice, J. G. Stecheglovitoff; Finance, W. N. Kokovtsoff; Commerce and Industry, M. T. W. Timacheff; Communications, S. V. Rukhloff; Procurator-General of the Holy Synod, S. M. Lukianoff; Agriculture, A. W. Krivocheyn; State Comptroller, P. A. Kharitonoff; Instruction, Dr. L. A. Casso. President of the Council of the Empire, M. G. Akimoff. President of the Duma, A. J. Gutchkoff.

## HISTORY

**THE DUMA.** The meetings of the Duma were marked by some disorder early in the year on account of the aggressive tactics of the Reactionaries and in March M. Homiakoff resigned the presidency. M. Gutchkoff the Octobrist leader was elected in his place. The appropriation to the department in charge of Siberian exile was cut down by the budget committee in March. The bill of the Opposition for the abolition of the death penalty was reported on adversely. The new president, M. Gutchkoff, declared that the chief need of the country was for national defense, and that a measure would be introduced for that purpose calling for an expenditure within the next ten years of \$650,000,000. Important measures passed were the Agrarian bill, the bill for the reform of the local courts, the bill for the establishment of zemstvos in the southwestern provinces and the Finnish bill (see below). The Duma adjourned at the end of June. M. Gutchkoff resigned the presidency to serve a term of imprisonment for having fought a duel, but after a detention of five days in August was released by order of the Czar. The Duma reassembled on October 28 and re-elected M. Gutchkoff as president. During the interval a special commission was appointed to investigate alleged abuses in the Admiralty, the Duma having made such investigation a condition of further grants for naval construction. Some of the chief measures passed by the Duma were held up by the Imperial Council. The latter withdrew the liberties provisionally accorded to the Old Believers by the Duma bill. The organization of the representatives of the gentry into a party under the title of Nationalists tended to strengthen the position of Premier Stolypin in the Duma. The expenditure of \$55,000,000 was authorized by the Duma for the reorganization of the army late in December, 1910. The Duma had not yet succeeded in attacking successfully the system of court-martial, although it had devoted its sessions to debates on the plan for a habeas corpus measure and trial by jury. The court-martial system, known as "re-enforced protection" had been for nearly four years enforced in most of the Russian cities. In regard to the question of nationality, Premier Stolypin laid down the principle that in regions where Russians happened to be in the minority, they should not be allowed to sink into political inferiority. Thus local administrations of the non-Russian parts of the empire, as, for example, Finland, Poland and the Baltic Provinces, must be approved by the Russians living there.

**THE LEGISLATIVE ACT FOR FINLAND.** The Finnish bill (see *FINLAND, History*) gave the Russian Duma authority to determine Finland's share in the Imperial expenses and to impose taxes, thus violating the constitutional right claimed by the Finnish people to tax themselves. The Duma also was to settle the rights of Russian subjects in Finland and might make exceptions to the Finnish criminal law and procedure. It could also legislate on popular education and the right of meetings and associations, on the importation of foreign literature, on the customs relations between Russia and Finland, on trademarks, copyrights and the monetary system, means of communication, navigation and the rights of aliens in Finland. The assumption of this great field of legislation

by the Russian Parliament was resented by the Finns as a complete subversion of their rights as a constitutionally governed country, and the Finnish Diet unanimously declared against it. On June 7 the Duma decided on the third reading of the bill by a vote of 196 to 105. M. Stolypin had declared the matter to be not one of controversy, but of historical fact. Finland had persistently refused to fulfil her military obligations. The bill only asserted the principle which Alexander I had applied, he said, and it had been repeatedly shown that Finland was subordinate in imperial matters by the acts of every emperor in the 19th century. The critical portions of the bill, namely, those providing that Finnish autonomy should be subject to the Imperial legislature as well as the provisions concerning schools, the press, right of meetings, of associations, taxation, military service, customs and the merchant marine were carried through with great rapidity, the Nationalists having secured the passage of a rule cutting off the debate on these clauses. The entire Opposition, along with some 20 Octobrists, immediately withdrew from the Chamber. The bill passed its third reading on June 10, and was accepted by the Council of the Empire on June 27. While the bill was under discussion remonstrances were received from members of the French, British, German, Italian, and Dutch parliaments. The French memorial of remonstrance was signed by 292 Deputies and 20 Senators and consisted in a historical survey of Finland's relations to Russia and of an appeal to the Imperial Duma "to bestow upon this problem the study that it deserves." It begins with a declaration that the signers "have followed with painful interest the recent development of the projects hostile to the independence" of Finland and feel "justified in drawing the attention of the Imperial Duma to the impression which persistence in such a policy must produce in France." The historical view of Russo-Finnish relations was precisely the opposite of that taken by the Czar, the Duma and the Council of the Empire, and the address amounted to a rather severe lecture on the policy which the Russian government had adopted.

**FOREIGN RELATIONS.** Relations with Austria-Hungary which had been strained since the Balkan crisis of 1908 were restored to a friendly footing in March. (See *AUSTRIA-HUNGARY, History*.) For an account of the Russo-Japanese Convention guaranteeing the *status quo* in Manchuria, see *JAPAN, History*, and for Russia's relation to the railway questions in the Far East, see *CHINA, JAPAN, and UNITED STATES, under History*. Concerning the difficulties occasioned by the retention of Russian troops in Persia, see *PERSIA, History*. The Czar's visit to the German emperor at Potsdam at the beginning of November occasioned much comment in the press, but it was declared to offer no menace to the stability of the Triple Entente, but on the contrary to assume its absolute maintenance; and that it had to do with the relations of Russia and Germany on the one hand and Persia and Turkey on the other. It was announced that the German government denied having taken any part in changing the attitude of Turkey toward Russia and that it acknowledged Russia's rights in northern Persia, but had expressed a desire that Russian railways projected in that region might be connected with the Bagdad railway. In the European press, it was regarded as a sign

that the Entente was drawing to an end. A meeting between the Czar and the King and Queen of the Bulgarians took place at St. Petersburg in March, at the end of which a note was issued declaring that the ministries of both governments were in accord in their desire to maintain peace in the Balkans. The King of Servia visited St. Petersburg soon afterwards.

**OTHER EVENTS.** Baron Ungern-Steinberg, the correspondent of an Austrian news agency, was arrested by the political police on June 25 and charged with having obtained possession of a secret document and shown it to some one in the Austrian service. In November he was found guilty of betraying military secrets and sentenced to hard labor for four years. The Asiatic cholera broke out in the Southwestern Province in June and by the first of July it had spread to St. Petersburg. At the end of July over 65,000 cases were reported in the provinces with a mortality at some points of nearly 50 per cent. and over 1000 cases were reported in St. Petersburg. Later, however, the numbers declined. Statistics published during the year showed that down to midsummer the deaths from cholera numbered 57,000 as against 28,000 in 1909. (See CHOLERA.) M. Nicholas Tchaikovsky and Madame Breschkovskaya who had been arrested in 1907 on the charge of belonging to a secret revolutionary society, but who on October 28, 1908, had been released on bail furnished by friends in England and the United States, were brought to trial in March. M. Tchaikovsky was acquitted, but Madame Breschkovskaya, who was seventy-eight years of age, was sentenced to Siberian exile. The Czar and his family spent two and half months in Germany in the autumn.

**RUSSIAN POLAR EXPEDITION.** See POLAR RESEARCH.

**RUSO-JAPANESE AGREEMENT.** See JAPAN, *History*.

**RUST-PROOFING PROCESS.** See CHEMISTRY.

**RUTGERS COLLEGE.** An institution of higher learning at New Brunswick, N. J., founded in 1766. There were enrolled in the year 1910 11,350 students in the courses leading to a degree, and about 100 registered on December 1, in the short course in agriculture. The faculty includes 42 members and the entire teaching staff is 52. Among the changes in the teaching staff during the year was the appointment of Walter Taylor Marvin, Ph. D., as professor of mental philosophy and logic; the appointment of Lieut. Arthur H. Ahrends, 29th Infantry, United States Army, professor of military science and tactics, and the appointment of Henry Briggs North, Ph. D., as associate professor of chemistry. John Hubbard Logan was appointed acting professor of history. During the year a chemistry building was in course of erection at a cost of \$65,000. It was ready for occupancy February 1, 1911. The productive funds held by the college amounted to about \$800,000 and the income was about \$150,000. The President is W. H. S. Demarest, D. D.

**RUTHENIUM.** See ATOMIC WEIGHTS.

**RYE.** The world's crop in 1910 was a little above the average but not quite as large as in 1909. The total production of the rye-exporting countries was larger and that of the rye-importing countries smaller than the year before. The world's rye crop in 1910 amounted to about 1,-

610,000,000 bushels, as compared with 1,736,683,000 bushels in 1909. See following table:

**THE WORLD'S RYE PRODUCTION IN 1909 AND 1910**

Countries	1909 Bushels	1910 Bushels
United States .....	32,265,025	33,065,600
Canada .....	1,715,380	1,544,755
Germany .....	447,127,550	414,139,700
Austria .....	114,526,060	109,027,550
Bulgaria .....	6,912,160	11,733,320
Denmark .....	19,053,940	18,907,075
Spain .....	34,929,535	27,618,655
France .....	55,734,845	47,987,150
Hungary (incl. Croatia and Slavonia) .....	50,857,345	59,420,720
Italy .....	5,036,500	5,443,110
Luxemburg .....	656,980	636,705
Norway .....	1,011,070	1,063,015
Netherlands .....	17,622,370	14,828,800
Rumania .....	3,091,340	7,683,300
Russia .....	897,580,855	869,359,800
Sweden .....	24,970,600	24,571,000
Switzerland .....	1,997,580	1,970,000
Algeria .....	22,470	62,500

The above figures are final for Germany, Spain, Hungary, Italy, Canada and the United States, and preliminary for all other countries. They are taken from the Bulletin of Agricultural Statistics for January, 1911, as published by the International Institute of Agriculture, Rome.

In the United States in 1910 rye gave a normal crop. This was largely due to the fact that the crop ripens earlier, the plant is hardier than the other common cereals and therefore the drouth conditions of the season could not exert such an unfavorable influence as they did upon other crops, particularly wheat and barley. Furthermore the most important rye-growing States are not in the section of the country where drouths were most prevalent and severe. The area devoted to rye in the United States this year was 2,023,000 acres and the average yield was 16.3 bushels per acre. The farm price per bushel on December 1 was 72.2 cents and on this basis the total yield represents a value of \$23,840,000. The leading rye-growing States and their yields were as follows: Pennsylvania 6,460,000 bushels, Michigan 5,355,000 bushels, Wisconsin 4,880,000 bushels, New York 3,111,000 bushels, Minnesota 1,955,000 bushels, New Jersey 1,530,000 bushels, Illinois 1,218,000 bushels and Nebraska 1,200,000 bushels. In all other States the crop amounted to less than a million bushels. The exports of rye from the United States in 1910 amounted to about 220,000 bushels, as compared with 1,272,500 bushels in 1909.

**SAGE FOUNDATION.** A foundation for social and economic investigation, founded in 1907 by Mrs. Russel Sage, who set apart in that year the sum of \$10,000,000 for its professional endowment. The object of the foundation is "the improvement of social and living conditions in the United States." The means by which this result is to be accomplished is not limited. The administration of the foundation is in the hands of eight trustees who are responsible for the expenditure of the income of the endowment fund and who are permitted to invest any part of that fund in plans for social betterment. The work carried on by the foundation in 1910 has included important researches in the charity organization department. In the Child-Helping Department a survey was under way of the institutions for the care of children in Virginia for the State Board of Public Charities of that State. The Depart-

ment of Child Hygiene, under the direction of Dr. Luther H. Gulick, conducted researches and promoted activities favorable to the physical, moral and intellectual welfare of children. The committee on the prevention of blindness conducted a national campaign for the prevention of blindness. The most interesting work of the foundation, however, is that carried on by the Sage Foundation Homes Company. This company obtained a large tract of land at Forest Hills, L. I., and on this it is erecting model buildings, including a railway station and other houses of attractive design and a varying cost. The general plan of the enterprise is indicated in the illustration on the following page. Forest Hills Gardens is a business enterprise and is expected to return moderate interest on the investment. It also has a distinct educational purpose. If the expectations of the promoters are realized, the enterprise will provide more healthful and more attractive homes to many people; it will demonstrate that more tasteful surroundings and open spaces pay in suburban development and would encourage more economical methods of marketing land. Forest Hills Gardens is a tract of 142 acres which has been laid out by Frederick Law Olmsted, the well known landscape architect. Its architectural development is in charge of Grosvenor Atterbury. The general director of the foundation is John M. Glenn.

**SAHABAN EXPLORATION.** See EXPLORATION.

**ST. ANDREW, BROTHERHOOD OF.** An organization of the Protestant Episcopal Church, established for the spread of religious faith among young men. The Brotherhood is divided into senior and junior departments. The number of active senior departments in 1910 was 864 and the junior departments numbered 525. The Brotherhood is active in the cause of domestic missions and is carrying on an official movement in the advancement of this cause. There were five secretaries in the field in 1910. Conferences were held in the South at Biloxi, Mississippi, July 2-4, and at Portland, Oregon, September 8-11. Two college conferences were held, one at New Haven, Conn., and the other at Ames, Ohio. James L. Houghteling, the founder of the Brotherhood, died July 28, 1910. The President of the Brotherhood is Edward H. Bonsall, Philadelphia.

**ST. HELENA.** A solitary island, of volcanic origin, in the South Atlantic, belonging to Great Britain. Area, 47 square miles; population (1909), 3577. Jamestown (1439 inhabitants), the capital and port, is a British coaling station. Fishing is carried on, and some crops are raised. Imports (1908), £36,216 (£34,175, Great Britain); exports, £6085 (£5537). Revenue, £7432; expenditure, £8104; debt, nil. Governor (1910), Sir H. L. Gallwey.

**ST. JOHN, Sir SPENCER.** An English diplomat, died January 3, 1910. He was born in 1825, and was educated in private schools. In 1848 he accompanied Sir James Brooke to Borneo as private secretary, and in 1850 acted as secretary to Brooke's mission to Siam. In 1851 he was Acting-Commissioner and Consul-General of Siam, and from 1855 to 1861 was Consul-General in the island of Borneo. In the latter year he became Chargé d'Affaires and Consul-General in Haiti, and in 1872 was Minister Resident and Consul-General at Lima, Peru. In the following year he was engaged in a

special mission to Bolivia. In 1883 he undertook a special mission to Mexico, and in the following year was appointed British Minister to Mexico. In 1893 he was transferred to Stockholm as Minister to Sweden. He wrote a number of books, including a *Life of Sir James Brooke*, and he edited a volume of essays on Shakespeare and his works.

**ST. KITTS, or ST. CHRISTOPHER.** An island of the British West Indies, forming, with Nevis and Anguilla, a presidency of the Leeward Islands (q. v.). Area, 150½ square miles (St. Kitts, 65½; Nevis, 50; Anguilla, 35). Population (1901), 46,446; estimated, 1909, 50,000. Births (1908), 1790 (illegitimate, 1118); deaths, 1269; marriages, 182. Capital, Basseterre, with 10,000 inhabitants; Charlestown (Nevis), has 1500. Primary schools (1908-9), 49, with 4649 pupils. Government grant, £1633. Secondary schools, 3, with 113 students. Area under cultivation (1908-9), 33,359 acres; under sugar cane, 15,539; under cotton, 4000 (1200 as a first crop preceding sugar cane planting). Production of sugar, 11,744 tons (11,044 exported); cotton, 474,079 pounds. Cattle are exported to neighboring islands. Imports (1908), £186,186 (from Great Britain, £70,900; British colonies, £23,008; other countries, £90,094; internal trade, £2184). Exports, £188,770 (to Great Britain, £40,296; British colonies, £103,259; other countries, £36,984; internal trade £8231). Tonnage entered and cleared, 638,941. There are four miles of telegraph line to submarine cable, and 261 miles of telephone line (St. Kitts only). Post-offices, 7. Revenue (year ending March 31, 1909), £47,133; expenditure, £45,722; estimates for 1909-10, £49,249 and £47,962. Public debt March 31, 1909, £76,000. Administrator in 1910, T. Laurence Roxburgh.

**ST. LOUIS.** See BRIDGES.

**ST. LUCIA.** An island of the Windward Islands (q. v.); a British colony. Area, 233 square miles; population (estimate, 1908), 55,097. Capital, Castries, with 7757 inhabitants. Schools, 51, with 7018 pupils enrolled. Sugar, cacao, and rum are the principal products. Imports and exports (1908), £289,775 and £152,380, respectively, against £310,309 and £122,020 in 1907. Telephone lines, 111 miles. Revenue and expenditure for the year 1909-10, £65,739 and £64,446 respectively, against £65,694 and £65,037 in 1908-9. Public debt (1908), £151,030. Administrator (1909), E. J. Cameron.

**ST. PIERRE AND MIQUELON.** The largest islands of two small groups off the southern coast of Newfoundland, which constitute a French colony. Capital, St. Pierre. Total area, 93 square miles; population (1902), 6482, of whom a number have since emigrated to Canada. Fishing is the chief industry, the islands being mainly barren rocks. The cod fisheries engaged (1907) 1281 men and 71 boats, of 3294 tons. Imports (1908), 5,242,000 francs (France, 2,539,000); exports, 6,594,000 (France, 5,607,000). Vessels entered (1907), 1520, of 109,000 tons. The local budget balanced (1908) at 476,305 francs (French expenditure, budget of 1909, 204,220 francs). Debt, January 1, 1907, 478,000 francs. Administrator (1910), M. Didelot.

**SAINTSBURY, G. E.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**ST. VINCENT.** An island of the Windward Islands (q. v.); a British colony. Area, 140

· FOREST HILLS GARDENS ·  
 · THE SAGE FOUNDATION · HOMES · COMPANY · OWNER ·



VIEW OF STATION SQUARE  
 FROM PALEOD. PLATFORM OVER GARDEN, NEW YORK

FOREST HILLS GARDENS

1140

square miles. Population (1891), 41,054; estimated 1910, 53,448. Capital, Kingstown, with (about) 4000 inhabitants. Primary schools, 27, with an average attendance of 2223 pupils. Principal products, arrowroot, cassava, cacao, cotton, cereals, peanuts, livestock, and sugar. Imports and exports for 1909, £87,810 and £88,698, against £113,713 and £94,740 in 1908. Export of arrowroot (1909), £31,792; cotton and cotton seed, £23,218. Length of telephone lines, 150 miles (about). Revenue and expenditure for the year 1909-10, £28,440 and £31,331 respectively (1908-9, £30,810 and £26,847). Public debt (1909), £2750. Administrator (1910), C. Gideon Murray. Part of the Grenadine Islands are attached to St. Vincent.

**SAKHALIN.** An island off the eastern coast of Siberia. Formerly the entire island was Russian, but that part south of the 50th parallel was ceded to Japan by the treaty of September 5, 1905. Russian Sakhalin has an area of about 16,370 square miles and upwards of 12,000 inhabitants. There are large coniferous forests, extensive beds of inferior coal, and valuable oilfields. It is administered by a military governor. To Japanese Sakhalin, or *KARAFUTO*, has been attributed an area of nearly 12,500 square miles, but in 1910 the chief of administration stated the area at about 8800 square miles. Population, over 26,000 (Japanese, over 24,000). About half the territory is forest, and an important turpentine industry is developing. The fishery was markedly successful in 1910. In that year 70 miles of railway were under construction. The budget for 1909-10 balanced at 1,868,190 yen; for 1910-11, 1,966,294; for 1911-12, 2,105,604; of the latter figure ordinary revenue and ordinary expenditure were 1,151,947 and 1,011,072 yen respectively. Deficits are covered by Japan. Chief of administration in 1910, Mr. Hiraoka.

**SALEEBY, C. W.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**SAISON OF FRENCH ARTISTS.** See PAINTING.

**SALT RIVER PROJECT.** See RECLAMATION.

**SALVADOR.** A Central American republic, on the Pacific coast. Capital, San Salvador.

**AREA AND POPULATION.** Estimated area, 7225 square miles. Estimated population at end of 1908, 1,148,624, largely mestizos and Indians. Births and deaths in 1908, 47,651 and 24,641 respectively. Principal towns: San Salvador, about 60,000 inhabitants; Santa Ana, 50,000; San Miguel, 22,000; Nueva San Salvador, 19,000; San Vicente and Sonsonate, about 18,000 each.

Primary instruction is free and compulsory. There are about 600 primary schools, with about 35,000 pupils enrolled, 25,000 in average attendance, and 1100 teachers. There are over 20 higher schools, including three normal and three technical schools and a national institute.

**PRODUCTION.** The people are engaged principally in agriculture. The leading crop is coffee (annual production about 37,500 tons). Other products are cacao, tobacco, indigo, rubber, Peruvian balsam, sugar, and bananas. Livestock (1908): 284,013 cattle, 74,336 horses, 21,457 sheep, and 422,980 swine. Various valuable mineral deposits occur, but mining is largely confined to gold and silver. There are a few small manufacturing industries.

**COMMERCE.** The imports subject to duty and

the exports have been valued as follows (imports in thousands of gold dollars, exports in thousands of silver pesos):

	1906	1907	1908	1909
Imports .....	4,164	3,441	4,241	3,788
Exports .....	16,309	15,163	15,434	16,964

In 1909 imports subject to duty were valued at \$3,787,844; free, \$389,087; total, \$4,176,931. With the silver peso valued at 37.5 cents, the exports amounted to \$3,361,340. The leading dutiable imports in 1909 were: Cottons, \$1,492,000; cotton yarn, \$128,363; flour, \$260,708; hardware, \$199,427; drugs, etc., \$193,214; shoes, etc., \$145,962; coffee sacks, \$117,904; foodstuffs, \$102,863. The principal exports in 1909 were: Coffee, 63,330,077 pounds, valued at \$4,590,705; gold (bars), \$688,510; silver (bars), \$300,745; indigo, 418,969 pounds, \$257,247; sugar, 1850 tons, \$136,575; gold and silver (not included above), \$111,584; balsam, 143,098 pounds, \$103,681. Imports from and exports to the countries commercially most important were as follows in 1909: Great Britain, \$1,438,614 and \$449,894 respectively; United States, \$1,344,316 and \$1,879,454; Germany, \$482,342 and \$1,061,316; France, \$285,170 and \$1,629,063; Italy, \$157,708 and \$430,811. The principal exports to the United States were: Coffee, \$770,201; gold, \$688,510; silver, \$300,745. Coffee export to France, \$1,601,013; to Germany, \$937,494; to Great Britain, \$196,342; to Italy \$430,811.

**COMMUNICATIONS.** In 1909 there were in operation 156 kilometres (97 miles) of railway (narrow gauge). There is a line from the port of Acajutla to San Salvador (105 kms.), with a branch to Santa Ana (40 kms.), and another line connects the capital with Santa Tecla (18 kms.). A railway between San Miguel and La Unión is under construction. Telegraph, 179 offices, with 2479 miles of line; telephone, 137 offices, 2049 miles of line; post-offices, 85.

**FINANCE.** Revenue and expenditure in 1908 amounted to 10,676,339 and 12,656,657 pesos respectively (the silver peso is worth 37.5 cents); in 1909, 10,716,099 and 11,856,002. Principal sources of revenue in 1909: Import duties, 5,841,734 pesos; liquor taxes, 2,377,423; public services, 944,061; export duties, 882,381. Larger items of expenditure in 1909: War and marine, 3,226,478; public debt, 3,207,924; interior, 1,808,006; fomento, 1,242,967. On January 1, 1909, the public debt stood at \$9,531,319 (gold) and 6,260,196 pesos (silver). The former amount included the external debt of \$8,572,146. On January 1, 1910, the gold debt was \$9,745,480, and the silver debt 5,534,847 pesos.

**GOVERNMENT.** The chief executive authority is vested in a president, elected by popular vote for four years and assisted by a cabinet of four members responsible to the National Assembly. The legislative power rests with this body, which is unicameral and is composed of 42 members elected annually. The President in 1910 was Gen. Fernando Figueroa, who was inaugurated March 1, 1907.

**SALVARSAN.** See ARSENO-BENZOL.

**SALVATION ARMY.** A religious body founded on military principles by William Booth in 1878, although as a Christian mission it had existed in London since 1865. The corps and outposts of the Army in the United States in 1910 numbered 896. The indoor attendance at its meetings was 8,248,497, and the open-air

attendance 1,526,971. The local officers and bandmen numbered 6104. There were 54,551 Junior meetings held with an attendance of 1,552,998. The relief institutions for the poor include 107 industrial homes, to which in 1910 14,668 men were admitted; 79 workingmen's hotels with shelter accommodations for 6592; 19 slum posts, by which 2856 sick cases and 21,344 families were visited during the year; 26 rescue homes to which 1372 girls and 938 children were admitted; a bureau for missing friends, through which 206 persons were found during the year; 3 colonies embracing 2569 acres of land, in which were 399 persons. The Army distributed 18,335 Thanksgiving dinners, and 344,062 Christmas dinners. It afforded temporary relief to persons outside industrial homes and hotels numbering 309,591 during the year. Summer outings were given to 3972 mothers and 35,949 children; 1,593,834 pounds of ice and 4,579,788 pounds of coal were distributed during the year. The above figures cover the work for the year ending September 30, 1910, in the United States only.

The United States is divided into two Departments with the National Headquarters in New York City. Miss Evangeline Booth is in charge with Colonel William Peart as Chief Secretary. The Department of the West which administers the affairs of the Western States has its Headquarters in Chicago. Commissioner Thomas Estill is in charge with Colonel George French as Territorial Secretary.

**SAMARIA, EXCAVATIONS AT.** See **ARCHÆOLOGY.**

**SAMARIUM.** See **ATOMIC WEIGHTS.**

**SAMBOURNE, EDWARD LINLEY.** An English cartoonist, died August 3, 1910. He was born in London in 1845 and was educated at the City of London School and at Chester College. At the age of sixteen he was an apprentice at the Marine Engine Works of John Penn & Sons in Greenwich. He early displayed a talent for drawing and having made the friendship of Mark Lemon, editor of *Punch*, he contributed a small drawing to that periodical in April, 1867. From that date he remained a contributor. He was for a time co-cartoonist with Sir John Tenniel and from 1901 to the time of his death was chief cartoonist of *Punch*. Among his publications are *New Sandford and Merton*, illustrated (1872); *Our Autumn Holiday on French Rivers* (1874); illustrations for Charles Kingsley's *Water Babies* (1876), and illustrated editions of many other books. He designed a diploma for the Fisheries Exhibition of 1883 and was one of the Royal commissioners, and sole juror in class 7, of the fine arts of the Paris exposition in 1900.

**SAMSONITE.** See **MINERALOGY.**

**SAMUEL, H. L.** See **GREAT BRITAIN, Government.**

**SAMOS.** One of the Anatolian Islands, a principality, under a Greek prince appointed by the Porte, to which it is tributary in the sum of 200,000 piastres annually. Its integrity is guaranteed by France, Great Britain, and Russia under the act of December 11, 1832. Area, 181 square miles; population, 53,424. Capital, Vathy (25,000 inhabitants). The island is fertile, and wine, raisins, olive oil, and tobacco are the chief products and exports. Imports (1909), 29,673,545 piastres (1 piastre = 4.4 cents); exports, 27,835,312 (wine, 12,000,000; cigarettes, 3,675,000). Revenue (budget

1910), 3,716,968 piastres; expenditure, 3,627,496; debt, 2,570,500. Prince-governor (1910), Andreas Kopassiss Effendi.

**SAN ANTONIO.** See **MUNICIPAL GOVERNMENT.**

**SANDERS, JARED YOUNG.** An American public official, elected July 5, 1910, United States Senator from Louisiana to succeed the late Senator McEnery (q. v.). He was born in St. Mary's Parish, La., in 1869 and graduated from Tulane University in 1893. He studied law and was admitted to the bar and practiced at Franklin and New Orleans. He was elected a member of the Louisiana House of Representatives in 1892 as an anti-lottery candidate in the famous struggle to break up the Louisiana lottery. He was a member of the constitutional convention in 1898 and was prominent in securing the franchise law which prevents negroes from voting. In 1900 he was elected Speaker of the House of Representatives. From 1904 to 1908 he was lieutenant-governor and in 1908 was elected governor of the State for the term 1908-12. Governor Sanders's election met with some opposition on the ground first, that he had not been nominated by a primary election, which the Louisiana law requires, and second that he came from the same parish and the same town as Senator Foster, being indeed the law partner of the latter. The custom has been in Louisiana that one Senator shall come from the northern and one from the southern part of the State. Further objection was urged that he intended to retain the governorship until December, 1910, when the Senate resumed its session. All these objections, however, were not sufficient to defeat him, and his election was practically unanimous.

**SANFORD, SAMUEL SIMONS.** An American musician and educator, died January 6, 1910. He was born in 1849 and studied music under Klingman, Mason, and Mills in the United States, and under Rubinstein, Battiste, and Ritter abroad. His high talents won him a prominent place among musicians and in 1894 he was appointed professor of applied music at Yale University. This position he held until his death. In coöperation with Professor Horatio W. Parker, he developed the musical department of the University, preferring this labor rather than the easier fields of professional accomplishment.

**SAN FRANCISCO.** See **CALIFORNIA, and MUNICIPAL OWNERSHIP.**

**SANITATION.** Local, State, and national health-protective work continued to grow in amount and efficiency during the year and to receive increasing appreciation from the general public. The movement to secure a national bureau or department of health was continued with unabated zeal, but Congress failed to take action on the subject. Of a number of Congressional bills effort centred on the Owen bill (see **HYGIENE**). Unexpected opposition to the bill arose from those who claimed that the real object of the Owen bill was to further the American Medical Association in general, and practitioners of the old school in particular. As a matter of fact, the bill did not include the recognition of any school of medicine, and only a relatively small part of the work which would be done under the bill, if enacted, is medical in character. State or preventive medicine, so-called, is largely sanitary rather than medical, having to do with the receiving and protection

of ample supplies of pure air, water, and food, and this requiring, in turn, the proper disposal of various domestic, manufacturing, and city wastes. The engineering character of much of the work of boards of health is now reorganized by the rapidly-increasing number of engineers appointed to membership. State and local boards of health are engaged to serve as executive officers. The most notable recent example of this was the appointment of a civil and sanitary engineer as chief of the bureau of health of the city of Philadelphia. A large part of the valuable work accomplished by the health boards or departments of the States of Massachusetts, New York, New Jersey, Pennsylvania, and Ohio is directed or carried on by sanitary engineers, ably assisted or supplemented by sanitary chemists and biologists. Besides water-supply and sewerage and the purification works often connected with each, modern sanitation includes street cleaning, garbage collection and disposal, drainage and filling for mosquito extermination, rat-proof construction for combating the plague, numerous mechanical and other devices or operations for disinfecting houses and dairy utensils, various means for controlling dust in factories and on and from highways, and other agents too numerous to mention. In all the ways just indicated there has been notable activity of late. Particular mention may be made of the ditching and draining of salt marshes in New Jersey for mosquito extermination, carried on at State expense under the direction of Prof. John B. Smith of New Brunswick, State Entomologist. In no field, perhaps, was more well-directed energy in behalf of public health directed in 1910 than in connection with the sanitary protection of milk supplies. Besides much municipal and a little State milk and dairy inspection, various important milk conferences were held in 1910. Two great aims of recent pure milk campaigns have been the protection of milk from infection from tuberculous cows and from a needless number of bacteria due to dirt and high temperatures, with resulting excessive infant mortality. The tuberculin test of all cows, with the removal of tuberculous cattle from the herds, and frequent general inspections to insure the proper sanitation of stables, bottling and shipping plants, milk stores and milk delivery carts, are now recognized essentials of a safe milk supply. The alternative now presented to milk dealers in a number of cities is either the tuberculin test and thorough sanitary inspection, with correction of sanitary defects, or else the pasteurization of the milk. By pasteurization is meant raising the temperature of the milk to from 140° to 165° F., and keeping it there long enough to kill disease germs. The "holding method" of pasteurization, or subjecting milk to heat for a considerable period is considered essential, while "commercial pasteurization," or heating for only an instant, is no longer approved by sanitarians. See also GARBAGE AND REFUSE DISPOSAL, SEWERAGE, SEWAGE PURIFICATION, STREET CLEANING, WATER WORKS, and WATER PURIFICATION.

**SAN JOSÉ SCALE.** See HORTICULTURE.

**SANTAYANA, GEORGE.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**SANTO DOMINGO.** The DOMINICAN REPUBLIC, occupying the eastern and larger part of the island of Haiti. Capital, Santo Domingo.

**AREA, POPULATION. ETC.** Estimated area, 18,045 square miles. The estimated population is upwards of 600,000, mostly of mixed Spanish and African blood; one estimate, relating to the end of 1908, places the population at 673,611. Principal towns: Santo Domingo, 20,000 inhabitants; Puerto Plata, 17,500; Macoris, 15,000; Santiago, 12,000. Public schools, at end of 1908, 440, with an enrollment of 15,901. State religion, Roman Catholicism.

**PRODUCTION AND COMMERCE.** There are no statistics of production, but the leading crops are sugar, tobacco, coffee, and bananas. Honey is produced in large quantities, and cattle raising is important. The forests contain valuable building and cabinet woods. Various minerals occur, including gold, iron, coal, copper, petroleum, and salt, but their exploitation is almost negligible.

Imports and exports have been valued as follows:

	1906	1908	1909
Imports .....	\$4,281,337	\$5,127,463	\$4,645,378
Exports .....	6,534,872	9,486,344	8,177,330

Leading imports in 1909: Cotton manufactures, \$925,970; iron and steel manufactures, \$609,416; rice, \$414,271; flour, \$309,282; meat and dairy products, \$292,006; oils, \$226,065. Principal exports in 1909: Sugar, \$3,304,931; cacao, 32,672,671 pounds, valued at \$2,759,191 (\$4,269,047 in 1908); leaf tobacco, \$1,239,486; coffee, \$128,202 (\$325,153 in 1908); bananas, \$125,766; wax, \$123,769; cattle hides, \$70,996. Imports from and exports to the principal countries, in thousands of dollars:

	Imports		Exports	
	1908	1909	1908	1909.
United States .....	2,892	2,593	4,212	4,765
Germany .....	868	912	4,220	2,190
Great Britain.....	789	577	20	77
France .....	212	189	908	924

**COMMUNICATIONS.** Puerto Plata is connected by rail with Santiago and Moca (state railway), and Sánchez with La Vega, with a branch from Macoris to Jina and another from Salcedo to Cabullas. Total length of railways in the republic, 282 kilometres (175 miles); in addition, there are about 362 kilometres (225 miles) of private lines for the large sugar plantations. A line is projected to connect Moca and Salcedo. Telegraph: 52 offices, with 2044 kilometres (1270 miles) of line (of which, 1444 kilometres state-owned). Post-offices, 81.

**FINANCE.** The standard of value is the United States dollar. Revenue and expenditure for 1909 are stated at \$4,523,160 (\$3,862,173 ordinary) and \$4,532,323 respectively. Principal items of ordinary revenue: Customs, \$2,936,760; spirit excise, \$281,598; Central Railway, \$247,047. Under an American-Dominican treaty looking to the adjustment of the debt, a loan of \$20,000,000 was authorized and an American receivership of customs, from April 1, 1905, established. The receiver has authority to deposit 55 per cent. of the customs revenue (less expenses of collection) for the national creditors. From April 1, 1905, to July 1, 1910, the receiver collected and distributed in accordance with the treaty stipulations \$16,553,839. Of the authorized loan, \$15,743,167 had been issued December

31, 1909, the amount of old obligations cancelled thereby being \$28,015,335. The reorganization of Dominican finance has proceeded most satisfactorily under the receivership.

**GOVERNMENT.** The constitution of April 1, 1908, vested the executive authority in a president, elected indirectly for six years and assisted by a cabinet. The legislative power devolves upon a congress of two houses, the Senate (12 members) and the Chamber of Deputies (24 members). The president in 1910 was Gen. Ramón Cáceres, who was installed in 1906 to complete his predecessor's term and was inaugurated for a full term on July 1, 1908.

The republic has one gunboat and four revenue cutters.

**SAO THOMÉ AND PRINCIPE.** Two islands off the coast of French Equatorial Africa, constituting a Portuguese colony. Total area, about 360 square miles; population (1900), 42,103 (negroes, 40,639). Cacao is the chief export, a considerable portion of the world's supply coming from this source; coffee, rubber, and cinchona are also exported. Imports (1908), 3,185,005 milreis; exports, 7,920,836. Exports of cacao to Lisbon in 1908 amounted to 477,175 bags (of 132 pounds each); re-exports from Lisbon to United States, 91,896 bags, or about one-eighth of the total American import. Vessels entered (1908), 190, of 494,000 tons. A railway (9 miles) is under construction on São Thomé. Estimated revenue (1909-10), 869,956 milreis; expenditure, 732,805. Governor (1910), vacant.

**SAPPHIRES, SYNTHETIC.** See **CHEMISTRY.**

**SARAWAK.** A British protectorate on the west coast of Borneo. Approximate area, 50,000 square miles; population, 500,000 (Malays, Dyaks, Kayahs, Kenyahs, Chinese, etc.). Capital, Kuching. The country produces sago, gutta-percha, rubber, beeswax, birds'-nests, tobacco, rice, rattans, pepper and gambier. Coal exists in great quantities; gold, silver, antimony, diamonds, and quicksilver occur. Total imports (1909), 5,325,759 dollars Mexican; exports, 6,153,207 (gold export, 1,130,760 dollars). Revenue (derived mainly from opium, gambling, arrack, Malay exemption tax, etc.) in 1909, 1,346,961 dollars; expenditure, 1,152,736. The territory is administered by the rajah, Sir Charles Johnson Brooke (born June 3, 1829); succeeded on the death of his uncle, June 11, 1868; married (1869) to Margaret Alice Lily de Windt. Heir-apparent, Charles Vyner Brooke (born Sept. 26, 1874).

**SARCOMA.** See **CANCER.**

**SARDIS, EXCAVATIONS AT.** See **ARCHAEOLOGY.**

**SASKATCHEWAN.** A province of Canada (since September 1, 1905). Capital, Regina. Area, 250,650 square miles. Population (est. 1910), 377,590. For details, see **CANADA.** The government consists of the Lieutenant-Governor, appointed by the Governor-General of Canada, the executive Council (responsible ministry), and the unicameral Legislative Assembly of 41 elected members. In 1910, Lieutenant-Governor, George William Brown; Premier, Walter Scott.

**SATOLLI, FRANCESCO.** A Roman Catholic prelate, died January 8, 1910. He was born in Perugia, Italy, in 1839, and was educated in the diocesan seminary of that city, then presided over by Gioacchino Pecci, Archbishop of Perugia, who afterwards became Pope, as Leo XIII. When Pope Leo went to Rome,

Satolli was summoned to the Vatican. In 1886 he was appointed president of the Academy of Noble Ecclesiastics and in 1889 was created Archbishop of Lepanto. In 1889 he was deputed by the Pope to represent the latter on the occasion of the celebration in Baltimore of the centenary of the Catholic hierarchy in the United States, and also at the inauguration of the Catholic University of the United States in Washington. During this visit he made the acquaintance of President Harrison and other public officials, and he was greatly impressed with the possibilities for the advancement of the church in the United States. Largely as a result of this visit and the accounts which he carried back to the Pope, he was appointed Apostolic Delegate to the Church in the United States in 1893. In 1895 he was elevated to the College of Cardinals and was invested with the beretta by Cardinal Gibbons in the Baltimore Cathedral in January, 1896. In the same year he returned to Rome. During his stay in the United States Cardinal Satolli acted as peacemaker between Dr. Edward McGlynn and Archbishop Corrigan. The former had been deposed from the rectorship of St. Stephen's because of his attitude on questions that were prominent then and because of his friendliness to Henry George, and the promotion of his doctrines through the Anti-Poverty Club. Through Cardinal Satolli's efforts Dr. McGlynn was restored to his priestly privileges, and was placed in charge of a parish in Newburg, N. Y. On the death of Pope Leo, Cardinal Satolli was mentioned as his possible successor.

**SAUSAGE.** See **MEAT AND MEAT INSPECTION.**

**SAVINGS BANKS.** The 1910 report of the Comptroller of the Currency summarized the reports of 638 mutual and 1121 stock savings banks in the United States. The mutual banks were all in the New England and Eastern States, except 21 situated in West Virginia, Ohio, Indiana, Wisconsin, Minnesota, and California. These had deposits aggregating \$3,360,563,000, an increase of \$215,979,000 over 1909. Almost one-half these deposits, or \$1,527,000,000, were in banks in New York State; and 23 per cent., or \$761,000,000, in Massachusetts. The depositors in mutual banks numbered 7,481,649, of whom 3,331,135 were in New England, and 3,832,438 in the Eastern States; there were 2,886,910 depositors in New York, 2,078,953 in Massachusetts, and 570,065 in Connecticut. The average interest rate on deposits was 3.92 per cent.

The stock savings banks, which are run with a view to dividends to stock holders, were distributed as follows: 8 in New Hampshire; 15 in the Eastern States; 149 in the Southern; 734 in the Middle Western; 59 in the Western; and 156 in the Pacific States; 663 were in Iowa alone. Their total deposits were \$709,922,403; the depositors numbered 1,661,259; and the average interest rate was 3.56 per cent.

There were thus in the United States 9,142,908 depositors, with \$4,070,486,000 to their credit, an average deposit of \$445.20. The average deposit in the more important States were: Massachusetts, \$366; Connecticut, \$481; New York, \$529; Pennsylvania, \$442; New Jersey, \$345; Ohio, \$375; Iowa, \$392; California, \$797. In 1900 there were only 1002 savings banks in the United States, with \$2,449,000,000 deposits; thus there was a very remarkable

growth for the decade just passed. This is shown also by the increase of the average per capita deposit in United States savings banks from \$31.78 in 1900 to \$45.05 in 1910.

School savings banks numbered 8515 on January 1, 1910, in the United States, Canada, Porto Rico and South and Western Australia. The number of pupils with deposits was 203,458, and they had \$870,696 to their credit. In the United States there were 7065 banks, with 160,488 depositors, and \$721,732 deposits.

Statistics of savings banks of the world as compiled by the Bureau of Statistics from official sources follow. See also POSTAL SAVINGS BANKS.

**SCANDINAVIAN PHILOLOGY.** See PHILOLOGY.

**SCANDIUM.** See ATOMIC WEIGHTS.

**SCARLET FEVER.** See VITAL STATISTICS.

**SCENIC AND HISTORIC PRESERVATION SOCIETY, AMERICAN.** A society incorporated in 1895 for the protection of the beauties of natural landscapes from disfigurement, the preservation of geological formation, and the saving from obliteration of all names, places and objects identified with national, State or local history. The society reports annually to the legislature of the State of New York. It has in its care five State properties, Stony Point State Reservation, the Watkins

	Date of report	Form of organization	No. of depositors	Deposits	Average deposit account
Austria.....	1907	Communal and private.....	3,860,935	\$1,030,692,915	\$266.95
	1908	Postal Savings department ..	2,106,539	46,009,897	21.84
	do	Postal Check department.....	86,500	65,458,557	756.75
Belgium.....	do	Government.....	2,624,991	171,044,463	65.16
Bulgaria.....	do	Postal.....	225,879	7,108,693	31.47
Chile.....	1910	Caja de ahorros.....	268,731	10,543,275	39.23
Denmark.....	1908	Communal and corporate.....	1,121,643	165,112,198	147.21
Egypt.....	1908	Government.....	86,728	1,986,755	22.91
France.....	1907	Private.....	7,793,549	683,794,796	87.74
	1908	Postal.....	5,291,673	296,964,867	56.12
Algeria.....	do	Municipal.....	19,301	934,380	48.41
Tunis.....	1909	Postal.....	5,628	1,222,230	217.19
Germany.....	1907	Public and corporate.....	10,291,320	3,313,104,942	17.17
	do	State.....	61,049	10,443,220	171.06
Luxemburg.....	1908	Private and communal.....	1,094,984	398,053,971	363.52
	do	Postal.....	684,299	18,803,992	27.48
	do	Postal Check department.....	17,491	14,559,000	832.37
Italy.....	1907	Communal and corporate.....	2,048,364	393,943,067	192.32
	1909	Postal.....	4,948,311	288,134,905	58.23
Japan.....	1908	Private.....	7,262,622	57,897,223	7.97
	1910	Postal.....	10,255,520	63,110,886	6.15
Formosa.....	1908	Private.....	3,285	101,412	17.41
	1908	Postal.....	84,010	897,328	10.68
China and Korea.....	1909	Postal.....	116,189	3,174,461	27.32
Netherlands.....	1907	Private.....	401,950	37,216,955	92.59
	1909	Postal.....	1,462,615	64,475,600	44.08
Dutch East Indies.....	do	Private.....	13,989	2,668,114	190.73
	do	Postal.....	71,214	3,073,705	43.06
Curaçao.....	1907	do.....	3,250	51,310	15.79
Dutch Guiana.....	1908	do.....	8,039	268,532	33.40
Norway.....	do	Communal and private.....	908,004	121,152,346	133.43
Rumania.....	1909	Government.....	207,021	11,611,420	56.06
Russia.....	1910	State, including postal.....	7,158,091	678,450,082	94.78
Finland.....	1908	Postal.....	58,826	1,432,801	24.30
	do	Private.....	268,709	39,897,978	148.48
Spain.....	1908	Private.....	438,113	40,237,022	91.84
Sweden.....	1908	Communal and trustee.....	1,493,764	191,231,786	128.02
	do	Postal.....	560,270	12,441,249	22.21
Switzerland.....	1908-9	Communal and private.....	1,768,948	279,848,800	158.20
United Kingdom.....	1909	Trustee.....	1,804,895	253,943,620	140.70
	1909	Postal.....	11,404,568	801,006,750	702.36
British India.....	1909	do.....	1,318,632	49,424,157	37.48
Australia, Commonwealth of.....	1908-9	Government, trustee and joint stock.....	1,394,154	238,838,754	171.31
New Zealand.....	1908	Postal.....	388,945	65,757,442	169.07
Canada.....	1910	do.....	147,488	42,848,025	290.52
	do	Dominion Government.....	37,419	14,563,224	389.19
British South Africa.....	1908	Government, post-office and private.....	196,607	22,604,917	114.98
British West Indies.....	1908-9	Government and post-office ..	85,348	5,840,997	68.43
British Colonies, n.e.s.....	1908-9	do.....	206,892	12,006,541	58.03
Total foreign countries.....			101,169,832	10,033,989,560	99.18
United States.....	1910	Mutual and stock.....	9,192,908	4,070,486,246	445.20
Philippine Islands.....	do	Postal.....	13,102	839,623	64.00
Grand total.....			110,362,740	14,105,315,429	127.88

Glen State Reservation, Letchworth Park, Fort Brewerton and Philipse Manor Hall. William Pryor Letchworth, the donor of Letchworth Park to the State of New York, died during the year. In accordance with the terms of the deed of gift, Mr. Letchworth retained a life tenure of the property. At his death the legal guardianship devolved upon the Society. The Society has been prominent in preventing the disfigurement of natural scenery by the erection of bill boards or by other advertising methods. The honorary president is J. Pierpont Morgan, the president, George Frederick Kunz, and the sec-

retary is Edward Hagan Hall. The landscape architect of the society is Samuel Parsons.

**SCHARWENKA, XAVER.** See MUSIC.

**SCHELLING, T. F.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**SCHIAPARELLI, GIOVANNI VIRGINIO.** An Italian astronomer, died July 4, 1910. He was born at Savigliano, Piedmont, in 1835. After studying in the schools of his native town he went to the University of Berlin, where he studied with the famous astronomer, Encke. He afterwards went to Pulkova where he

studied under Struve. He returned to Italy in 1859 and was at once appointed an assistant in the observatory of Brera at Milan. He became director of this observatory in 1896 and held this position until his retirement in 1900. His first important discovery was that of the planetoid Hesperia No. 69 in 1861. He then established his reputation by pointing out the coincidence of the orbits of certain comets with the paths of the shooting star showers. His observations were confirmed in a monograph on the falling stars, printed in Florence in 1867 and in another work in 1871. His next work was a series of observations of the double stars, involving elaborate calculations as to their distances apart. Following this came his observations on Mars, involving his theory of the habitation of the planet by sentient beings akin to mankind. When he published his maps and the descriptions of the markings he had made, many astronomers met them with open opposition. They insisted that while they had been observing Mars all their lives they had seen no such markings. Others, however, defended the Italian's ideas and his theory of the habitation of Mars has defenders to this day. This discussion led to a world-wide study of the planet, which established the existence of the markings as described by Schiaparelli, also the presence of an atmosphere and of water on the planet, with a probability of vegetation. Besides Mars he devoted considerable attention to the planet Mercury and announced in 1889 that he had been able to fix the period of its revolution at 88 days, a period exactly corresponding with its revolution around the sun so that, like the moon as regards the earth, the planet always presents the same portion of its surface to its primary. Schiaparelli was the author of a number of important works on astronomy. Besides those on comets and falling stars already mentioned, he published *The Precursors of Copernicus in Antiquity* (1873), *Observations on the Movement of Rotation and the Topography of the Planet Mars* (1878-86), and *Astronomy in the Old Testament* (1905).

**SCHILLER, F. C. S.** See LITERATURE, ENGLISH AND AMERICAN, *Philosophy and Religion*.

**SCHILLING, JOHANNES.** A German sculptor, died March 22, 1910. He was born at Mittweida, Saxony, in 1828 and studied at Dresden and Berlin. In the former city he won a prize which enabled him to study for three years at Rome. He returned to Dresden in 1856 and became professor of the academy in that city in 1868. His first works to attract attention were the four admirable groups of "Morning," "Noon," "Evening" and "Night" on the Brühl Terrace in Dresden. Notable also are the colossal group of "Dionysos and Ariadne" on the façade of the Royal Theatre at Dresden and the monument to Emperor William I. at Wiesbaden. His masterpiece is the famous national monument in the Niederwald, unveiled in 1883. His works represent the transition from the classical to the romantic style and are characterized by a high sense of the beautiful and by careful execution.

**SCHINZ, ALBERT.** See LITERATURE, ENGLISH AND AMERICAN, *Philosophy and Religion*.  
**SCHNITZLER, ARTHUR.** See GERMAN LITERATURE.

**SCHOOL FUNDS.** See EDUCATION IN THE UNITED STATES.

**SCHOOL HYGIENE.** See EDUCATION IN THE UNITED STATES.

**SCHOOLS.** See EDUCATION IN THE UNITED STATES.

**SCHOLLAERT, F.** See BELGIUM, *History*.

**SCHOLEFIELD, G. H.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**SCHUMANN FESTIVALS.** See MUSIC.

**SCHÜRER, EMIL.** A German Lutheran theologian, died in May, 1910. He was born at Augsburg in 1844, and studied theology at Erlangen, Berlin and Heidelberg. He became professor of theology successively at Leipzig, 1873, Giessen, 1878, Kiel, 1890, and Göttingen, 1895. He published *Die Gemeindeverfassung der Juden in Rom* (1879), *Die ältesten Christengemeinden im römischen Reich* (1894), and the work by which he is best known, *Geschichte des jüdischen Volkes im Zeitalter Jesu Christi* (1886-90; Eng. trans., 1886-90). After 1876, with Adolf Harnack, he edited the *Theologische Literaturzeitung*.

**SCIENCES, NATIONAL ACADEMY OF.** A society organized for the examination and investigation of any subject of science or art, and for making reports at the call of the United States government, the actual expense of such examination and report to be paid out of the appropriation made for that purpose. It was incorporated by act of Congress May 3, 1863. The academy can not, under any circumstances, receive compensation from the government for its services. Annual reports are made each year at the meetings, which are held at such places in the United States as may be specially designated. The annual meeting is held in Washington on the third Tuesday in April. The academy is composed of members, honorary members and foreign associates. Citizenship is prerequisite to full membership, while the number of foreign associates is limited to 50. The academy had on December 1, 1910, a membership of 115, with 44 foreign associates. The officers are elected for six years. Those in office in 1910, with dates of expiration of their terms, were as follows: President, Ira Remsen (1913); vice-president, Charles D. Walcott (1913); foreign secretary, George E. Hale (1916); home secretary, Arnold Hague (1913); treasurer, S. F. Emmons (1914). The autumn meeting in 1910 was held at St. Louis November 8-10. The following papers were read: "Some Problems of Stellar Motion," by George C. Comstock; "Preliminary Note on the Sun's Velocity with Respect to Stars of Spectral Type A," by Edwin B. Frost; "On the Origin of Binary Stars," by Forest R. Moulton; "The Cycadophytes," by John M. Coulter; "A Monograph of Agave in the West Indies," by William Trelease; "The Mode of Chromosome Reduction," by Reginald R. Gates; "The Front Range of the Rocky Mountains in Colorado," by William M. Davis; "Mutualism, Parasitism and Symbiosis," by George T. Moore; "A Molecular Rearrangement leading to the Formation of Anidines," by Ira Remsen.

**SCOFIELD, WALKER KEELER.** An American rear-admiral of the United States Navy, died August 6, 1910. He was born in Stamford, Conn., in 1839 and entered the navy as assistant surgeon in 1861. In 1868 he graduated from the College of Physicians and Surgeons. In 1864 he was made passed assistant surgeon in the navy and surgeon in 1866. In 1883 he

was made medical inspector and was promoted to be medical director in 1890. He was retired with the rank of rear-admiral in 1901.

**SCOTLAND.** See GREAT BRITAIN.

**SCOTT, HARVEY W.** An American newspaper editor, died August 7, 1910. He was born in Tazewell county, Ill. in 1838. He was reared on a farm and worked at various occupations, finally removing to Oregon in 1852. He joined a militia company and was engaged in several affrays with the Indians in the Puget Sound country. He worked his way through the common schools, and was a hard student, particularly of the English classics. He joined the staff of the *Portland Oregonian* in the early 60's, when it was a small and unimportant paper. He became its editor in 1865 and remained in that position until his death. In addition to being editor of the journal he was its principal owner. Through his aggressive and independent efforts the *Oregonian* became one of the most influential papers in the West. In 1896, when the sentiment for free silver prevailed more or less throughout the western part of the country, Mr. Scott, who believed in the gold standard, maintained his attitude and as a consequence lost many subscribers. Oregon, however, was the only Pacific coast State that was carried solidly for gold in that struggle. He was always a Republican, with a leaning toward lower tariff. Some of his political quarrels, particularly that with Senator Mitchell of Oregon, became historic in the Northwest.

**SCOTT, ROBERT F.** See POLAR RESEARCH.

**SCOTT, WILLIAM EARL DODGE.** An American ornithologist, died August 27, 1910. He was born in Brooklyn, N. Y., in 1852 and graduated from Harvard College in 1873. From 1874 to 1885 he was curator at Princeton University and from 1897 to the time of his death was curator of the department of ornithology at that university. He did field work for the British Museum, the American Museum of Natural History and the Museum of Comparative Zoölogy. Among his published works are *Bird Studies* (1902), *Birds of Patagonia, No. 1*, (1903), *No. 2* (1910). He also contributed many technical articles on birds to scientific journals and wrote many popular articles on ornithological subjects for magazines.

**SCOTTISH SOUTH POLAR EXPEDITION.** See POLAR RESEARCH.

**SCRIBNER, GILBERT HILTON.** An American lawyer and scientist, died January 5, 1910. He was born in Monroe county, N. Y. in 1831 and was educated at Oberlin College. He studied law, and practiced at the bar from 1856 to 1868. In the latter year he entered the legislature, and from 1870 to 1873 was Secretary of State. In 1883 he published a monograph, entitled *Where Did Life Begin?* in which he originated the theory of the circumpolar origin of life. He also contributed to the *Popular Science Monthly* and other scientific journals. He was a member of several learned societies in New York City.

**SCULPTURE.** In New York's 1910 Spring Academy exhibition the display of sculpture had to be small owing to lack of room. Gertrude V. Whitney's "Paganism Immortal," the nude figures of a man and woman in the style of Rodin, was ambitious and conspicuous. Robert I. Aitken's portrait of George Bellows; Augustus Lukeman's "Genius of the Forest,"

Victor D. Brenner's portrait of Theodore Roosevelt, and one of Henry Irving by Courtenay Pollock were among other contributions worthy of mention. In the Winter Academy D. C. French's impressive memorial to Alice Freeman Palmer, late president of Wellesley College, held the place of honor. A woman of majestic mien guides a young girl who holds the lamp of knowledge. A fountain figure by S. E. Fry; Robert I. Aitken's portrait of Henry R. Wollcott; Karl Bitter's portraits of Dr. Angell of the University of Michigan, and of Mrs. Edwin Emerson; J. Scott Hartley's "Fisherman's Luck;" "Bondage," the strong figure of a woman, by C. A. Heber; some small pieces in figurine style, delightful in their grace, by Bessie Potter Vonnoh, and the study of a small girl by Edward Berge, were perhaps the best things shown. A special exhibition of sculpture by women showed some clever pieces. Gertrude V. Whitney's "Aztec Fountain" for Washington; "A Victory," by Sallie James Farnham; Janet Scudder's "Sun Goddess" for the Brooklyn Institute, and Helen F. Mear's portrait busts were among the important contributions.

Among the most important statues unveiled during the year were Gutzon Borglum's heroic Lincoln, a seated figure made for Newark, New Jersey; "The White Woman of the Genesee," a woman's figure in Indian dress, for Portage, New York, by Henry K. Bush-Brown; Saint Gaudens's bronze memorial of Phillips Brooks, erected outside of Trinity Church, Boston; and Paul W. Barlett's figure of Philosophy for the New York Public Library façade, one of four to be completed by this sculptor.

Much interest was shown in Paris in the exhibition of George Grey Barnard's symbolical groups, "The Life of Humanity," for the Pennsylvania Capitol. Critical judgment was divided as to Mr. Barnard's success in blending modern realism with classical conventionalism. Burr Miller, an American, also showed in Paris his heroic figure of Thomas B. Reed for Portland, Me. Of the French sculpture of importance exhibited during the year were two exquisite fountain designs, one by Félix Charpentier, and the other by Raoul Larche. A peasant group in mottled granite, by Emile Guillaume, attracted attention.

Thomas Brock's bronze statue of Henry Irving in Charing Cross, London, was perhaps the most important sculpture of the year in England. It was erected by the members of the theatrical profession and represents the late actor standing in his doctor's gown. The conventional masks of Tragedy and Comedy appear in the base. A quadriga by Adrian Jones, for Constitution Hill, London, was one of the largest and most ambitious pieces of sculpture of the year by an English sculptor.

In Germany, the exhibition in Leipzig of a life-size group entitled "The Vampire," by Miss Kuhne Beveridge, an American, caused discussion by the realistic treatment of the nude figures of a man and woman. German sculptors were gratified by the selection of Hermann Hahn's design for the Goethe Memorial to be erected in Lincoln Park, Chicago. The design represents the lightly draped figure of a young man holding an eagle. Above the pedestal, is a portrait in relief of the poet.

In Vienna, a marble statue by Edmund Hellmer in the courtyard of the university, was

greatly praised for its simple beauty. A draped female figure sits in dream-like contemplation. At the feet of the figure, which is eighteen feet high, is a fountain.

**SCULPTURE SOCIETY, NATIONAL.** A society incorporated in 1896 for the purpose of spreading the knowledge of good sculpture, fostering the taste for ideal sculpture and its production, the promotion of the decoration of public and other buildings, and the improvement of the quality of the sculptor's art as applied to the industries. There are about 250 members, of whom about 100 are sculptor members, whose work has to pass a special committee before they can be recommended to election. The Society inaugurated in 1909 a circulating exhibition of small bronzes and this was continued in 1910. Exhibitions were held in Buffalo, Pittsburg, St. Louis and Chicago. The honorary president of the Society, J. Q. A. Ward (q. v.) died during the year. A friendly competition for the medal of the Society, confined to its members, was carried on during the year. The design submitted by the president, Hermon A. MacNeil, was selected. The officers of the Society in 1910 were Hermon A. MacNeil, president; John M. Carrere, first vice-president; F. G. R. Roth, second vice-president; I. Wyman Drummond, treasurer; and J. Scott Hartley, secretary.

**SEA PLANT FIBRE.** See **CHEMISTRY.**

**SEATTLE.** See **WASHINGTON.**

**SEBALD, ALEXANDER.** See **MUSIC.**

**SECONDARY EDUCATION.** See **EDUCATION.**

**SECHE, LÉON.** See **FRENCH LITERATURE.**

**SEIDEL, EMIL.** See **WISCONSIN.**

**SEISMOLOGY.** See **EARTHQUAKES.**

**SEITZ, D. C.** See **LITERATURE, ENGLISH AND AMERICAN, Travel and Description.**

**SELBORNE DOCK.** See **DOCKS AND HARBORS.**

**SELENIUM.** See **ATOMIC WEIGHTS.**

**SELIGMAN, C. B.** See **LITERATURE, ENGLISH AND AMERICAN, Travel and Description.**

**SELIGMAN, WILLIAM.** An American financier, died January 6, 1910. He was born at Bayersdorf, Germany, in 1822 and in 1839 emigrated to the United States. He settled in Alabama, where he engaged in business until the outbreak of the Civil War, when he was obliged to leave on account of his Unionist sympathies. With seven brothers, who had come from Germany in the meantime, he established a dry-goods and commission business, in New York City. This, later, was converted into the banking firm of J. & W. Seligman & Co. The California branch of the drygoods business was also converted into a bank in San Francisco. The Paris branch of the house was established in 1864 by William Seligman. In the same year the London house was opened, with two brothers, Isaac and Leopold in charge, and the Frankfort house in charge of Henry and Abraham. During the Civil War Mr. Seligman aided the authorities in New York City in suppressing the draft riots, and soon after the establishment of the Paris house he succeeded in interesting French investors in United States government bonds. In recognition of these and other services, President Grant appointed the Seligman houses fiscal and naval agents of the government in 1868. This post they have held since with the exception of the two Cleveland administrations. Mr. Seligman was for many

years dean of the American Chamber of Commerce in Paris. For his services as a banker and in promoting trade he was made an officer of the Legion of Honor, in 1878.

**SEMBRICH, MARCELLA.** See **MUSIC.**

**SENATORS, DIRECT ELECTION OF.** See **DIRECT ELECTION OF SENATORS.**

**SENATE.** See **CONGRESS, and DIRECT ELECTION OF SENATORS.**

**SENEGAL.** The oldest colony in French West Africa (q. v.). Area, 192,000 square kilometres. Recently estimated population, 1,172,096 (4229 French). Capital, St. Louis, with (1908) 22,093 inhabitants. Dakar (administrative headquarters for French West Africa) has 24,914; Rufisque, 12,457; Gorée, 1560. Schools (1908): 38 official, with 3717 pupils; 2 private, with 94; Mussulman, 1316, with 10,717. The following are the principal products with export values for 1908: Peanuts, 32,889,312 francs; rubber, 3,865,547; gum arabic, 1,581,945; animal products, 1,005,676; live animals, 253,261; rice 33,587; smoked and dried fish, 24,677. Total imports and exports (1908), not including those of Upper-Senegal-Niger, 67,069,680 and 45,474,069 francs respectively. Official figures for 1907 (54,696,406 and 43,858,850) included both colonies. Of the 1908 imports 25,346,000 francs' worth came from foreign countries, the remainder from France and French colonies; of the exports, to foreign countries, 15,437,000. Vessels entered (1908), 1142, of 293,386 tons; cleared, 1136, of 286,001 tons. The railway from Kayes to Koulikoro has a length of 555 kilometres; and that connecting Dakar, Rufisque, and St. Louis, 264 kilometres. There are 1351 miles of telegraph lines and about 100 of telephone. Dakar is connected by cable with France (Brest). A steamer service on the Senegal connects St. Louis with Kayes (490 sea miles). Number of post and telegraph offices, 44. Revenue and expenditure (1908) for the territories of direct administration, 2,069,492 (less 131,935 applied to the deficit of 1906) and 1,812,387 francs respectively; for the protectorate, 4,840,632 and 4,509,029. The Bank of West Africa has a capital of 5,895,000 francs and 254,000 francs reserve funds. The lieutenant-governor of Senegal (1910, J. M. Gourbeil) is under the direction of the governor-general of French West Africa. The colony sends one deputy to the French Chamber.

**SERUM THERAPY.** An enormous amount of investigation into the problems of serum therapy and of immunity, natural and artificial, was undertaken during 1910. While no new serums were introduced, a better understanding of the value of this class of remedies was arrived at. Normal blood serum was employed by J. E. Welch in the treatment of *hemophilia neonatorum*—a very fatal form of hemorrhage in new born infants. Carrel, of the Rockefeller Institute, had previously succeeded in saving the life of a moribund infant by anastomosing the child's popliteal vein with the father's radial artery and allowing his blood to flow into the vessels of the exsanguinated infant. This method is technically difficult, and a suitable donor of blood is not always at hand. Welch, therefore, drew off the blood from the donor into a sterile flask, allowed it to clot, and then injected subcutaneously the separated serum in doses of 10 c. c. every two hours, in severe cases of bleeding. The results were per-



**MEMORIAL TO ALICE FREEMAN PALMER AT WELLESLEY COLLEGE**  
**DANIEL C. FRENCH, SCULPTOR**

1700

fect. Whereas seventeen out of eighteen cases of hemophilia neonatorum, occurring before the institution of this method, had died, of the eight children treated with the human serum, all made rapid recoveries.

**VACCINE THERAPY.** A serum is made by the inoculation of an animal with successive doses of bacteria or toxins, thus producing in its blood a certain degree of immunity. This blood or serum, when injected into another animal, or human being, increases by so much his resistance to the particular bacteria for which the serum is prepared. The immunity conferred is fleeting and passive, and, with the exception of diphtheria antitoxin and possibly cerebrospinal meningitis serum, the prophylactic value is greater than the curative power. Vaccines, on the other hand, aim to develop an active immunity in the blood of the sick individual. Vaccines are prepared in the following way: A culture is made of the particular germ desired; this culture is then killed by heat and suspended in normal salt solution in such a way that definite numbers of the killed bacteria can be given at a dose. Two kinds of vaccines are made: Autogenous vaccines, prepared from cultures derived from the lesion of the patient, and stock vaccines, derived from artificially propagated cultures of particular kinds of bacteria, streptococci, pneumococci, etc. As different strains of the same organism vary in activity and virulence, better clinical results are had from autogenous vaccines. It can readily be seen that the variety of these is endless and that the technique is simple in comparison with that of making antitoxic serums. Vaccines were used widely during the past year, but the science is still in an experimental stage.

**SERVIA.** A constitutional monarchy in the south of Europe; one of the Balkan States. Capital, Belgrade.

**AREA, POPULATION, ETC.** Area, 18,649 square miles. Population (1900), 2,493,882; estimated, December 31, 1908, 2,853,659. Marriages (1909), 26,641; births, 110,226; deaths, 83,350. Belgrade had (1905) 77,116 inhabitants; Nish, 21,946; Kraguyevac, 15,596; Leskovac, 13,647. Elementary instruction is free, state-aided, and nominally compulsory. Attendance is poor; in 1900 only 16.99 per cent. of the total population could read and write. Schools (1907): 1292 primary, with 2373 teachers and 132,051 pupils; secondary, 20, with 327 and 6061; 4 normal, with 27 and 437; besides special and professional schools. Belgrade University had (1908-9) 902 students, of whom 46 were women.

The Greek-Orthodox is the state religion; entire religious liberty prevails.

**PRODUCTION.** Of the total population (1900), 2,093,947 were dependent on agriculture. Of the total area in 1905, 1,027,816 hectares were sown to crops, 25,815 were under gardens, 33,101 under vines, 136,940 under orchards, 59,855 under common and 95,709 under other pastures, 322,683 under meadows, 136,399 in worked and 166,612 in unworked forests; miscellaneous, 50,246; making a total of 2,055,000 hectares of productive area. The area, production (in metric quintals), and value of the main crops in 1906 are shown in the table at top of next column.

**Livestock (1905):** 969,953 cattle, 3,160,166 sheep, 174,363 horses, 908,108 swine, and 510,063 goats. Sericulture employed (1907) 9850 persons; export of cocoons, £30,538. Coal and

Crops	Hectares	Quintals	Dinars
Corn .....	548,156	7,067,909	64,994,569
Wheat .....	372,868	1,596,433	41,539,680
Rye .....	48,637	396,271	3,656,355
Barley .....	109,349	1,055,469	9,162,455
Oats .....	105,843	672,748	6,141,297
Spelt .....	6,619	29,545	265,874
Millet .....	528	3,688	59,932
Buckwheat .....	2,054	6,685	65,135
Total cereals.....	1,194,054	12,818,748	125,876,297

Sugar beets.....	1,200	134,852	333,583
Hay (meadow)....	319,166	5,345,854	22,034,783
Hay (clover).....	6,478	219,599	549,001
Plums .....	132,086	3,443,802	19,476,296
Potatoes .....	12,093	489,570	3,545,872
Vegetables .....	9,121	673,178	16,039,104
Wine .....	34,804	574,407	33,887,945

lignite output, (1907), 269,316 metric tons, valued at 3,045,621 dinars. Roads and railways are lacking for proper development of the mineral resources; though workable quantities exist of gold, copper, lead, zinc, antimony, silver, iron, quicksilver, asbestos, arsenic, chromium, graphite, gypsum, sulphur, marble, building stone, and oil shales. Milling, brewing, distilling, sugar refining, and iron working are carried on; and quantities of plum preserves are put up for export.

**COMMERCE, ETC.** Details of the special trade for 1909 and totals for three years are as follows (in thousands of dinars):

Articles	Imports	Exports
Textiles and raw materials.....	21,930	1,571
Foodstuffs, etc.....	15,557	83,068
Metals .....	13,662	5,237
Machines and implements.....	6,163	8
Drugs, chemicals, colors.....	3,647	246
Minerals and petroleum.....	3,441	2,699
Skins and leather.....	2,996	21
Paper .....	1,979	28
Articles of luxury.....	1,731	9
Stone, pottery, etc.....	989	89
Glass and glassware.....	874	1
Other merchandise.....	56	5
Total, 1909.....	73,535	92,982
Total, 1908.....	75,635	77,749
Total, 1907.....	70,583	81,491

Germany (1909) furnished imports valued at 28,858,000 dinars, and received exports valued at 15,595,000; Austria, 17,797,000 and 29,097,000; Great Britain, 7,585,000 and 142,000; Turkey, 4,856,000 and 21,974,000; France, 3,536,000 and 2,429,000; Italy, 2,345,000 and 3,047,000; Russia, 1,932,000 and 20,000; Rumania, 1,613,000 and 2,282,000; Belgium, 1,589,000 and 9,906,000.

Total railway mileage (1908), 420 (one main line and branches); highways, 3495; telegraphs, 2140 (wires, 6030); post-offices, 1493.

**FINANCE AND GOVERNMENT.** The unit of value is the dinar, worth 19.3 cents. Revenue and expenditure for three years have been as follows (1908 and 1909 estimates) in dinars:

	1907	1908	1909
Revenue.....	96,977,513	96,685,659	104,576,998
Expenditure ...	87,602,641	96,614,110	104,253,538

The budget for 1910 estimates the revenue at 115,277,745 dinars, derived as follows: Direct taxes, 32,235,000; monopolies, 30,010,000; customs, 12,300,000; state railways, 12,000,000; domains, 7,000,462; excise, 6,600,000; judiciary

taxes, 5,515,000; posts and telegraphs, 3,127,000; various, 1,951,283; extraordinary, 4,539,000. Expenditure, 115,072,843, distributed as follows: Debt, 33,196,850; war, 26,626,935; public works, 14,709,393; finance, 10,985,218; worship and instruction, 8,189,950; interior, 4,962,530; pensions and subventions, 4,860,249; agriculture and commerce, 3,761,944; justice, 2,445,029; foreign affairs, 2,435,364; civil list, 1,200,000; Skupschtina, 674,000; various, 699,081; extraordinary, 500,000. The debt stood, Jan. 1, 1910, at 536,720,000 dinars. An additional loan of 150,000,000 dinars nominal was realized in 1910.

**ARMY.** The army is recruited by compulsory service which begins at the age of 17 when youths are incorporated in the Landsturm to which they return after service with the active. Theoretically from the age of 21 there is 10 years of military service in the first line after which the soldier passes to the second and third. In practice, however, the army is maintained largely on a skeleton basis and service with the colors is limited to two years for the cavalry and artillery and 18 months in the other branches. In fact many have only 6 months' service with the colors. The skeleton organizations are maintained at an average strength of 24,000 officers and men, with an increase of about 10,000 in the summer when additional recruits are incorporated for training. The organization of the first line comprises five divisions with a strength of 125,000 men and capable of being increased to an army of 200,000 ready to take the field. The infantry comprise 30 2-battalion regiments and 2 battalions of frontier guards, armed with Mauser rifles. The militia when mobilized would supply 45 regiments for the first and second lines. During the year a school of musketry was established at Belgrade. In 1910 the war budget amounted to 26,626,935 dinars, an increase of 5,389,710 dinars over that of the previous year and represented 23 per cent. of the total budget. The increase was desired to augment the number of troops but especially the number of officers, and the effective strength of the army, and to provide additional equipment and facilities. Estimates vary on the actual fighting qualities of the army. Many of the troops are raw and inexperienced while some of the officers are poorly and inadequately trained.

**GOVERNMENT.** The executive authority rests in the king, acting through a council of eight responsible ministers. The Narodna-Skupschtina is the (unicameral) legislative body, with 160 deputies, popularly elected. The reigning sovereign, Peter I (Karageorgevich), was born July 11, 1844; elected June 15, 1903; married (1883) to Princess Zorka, of Montenegro (died 1890). Heir-apparent, Prince Alexander, born December 16, 1888. The council in 1910 (constituted October 24, 1909) was as follows: Premier, N. P. Pashich; Foreign affairs, Dr. M. G. Milovanovich; Finance, S. M. Protich; Worship and Instruction, S. M. Protich (ad int.); Justice, K. Timotievich; Commerce, Agriculture, etc., J. Prodanovich; Interior, J. Prodanovich (ad int.); Public Works, V. Voulovich; War, Col. J. Goikovich.

**SETON, ERNEST THOMPSON.** See BOY SCOUTS OF AMERICA.

**SEWARD, GEORGE FREDERICK.** American financier, died November 28, 1910. He was born in 1840 and was educated at Seward Institute and Union College. He entered the government

service and from 1861 to 1863 was Consul, and from 1863 to 1876 Consul-General at Shanghai, China. He was appointed Minister to Korea in 1869, but at his suggestion the sending of a mission to that country was deferred. He was Minister to China from 1876 to 1880, but on account of his refusal to undertake negotiations for a treaty restricting Chinese immigration, he was recalled. During his service in China he was active in checking piracy and suppressing riots. He was also engaged in diplomatic service in Korea and Siam. Returning to the United States he became engaged in the business of insurance and in 1887 was elected vice-president of the Fidelity and Casualty Company. In 1893 he was made president of this company. He was considered an authority on casualty insurance. Mr. Seward wrote much relating to his experiences in the East and on the diplomatic and commercial relations of the United States with China. He received decorations in recognition of his services from the Danish and French governments. He was president of the North China branch of the Royal Asiatic Society for two years. Among his published writings are *Chinese Immigration in its Social and Economic Aspects* and *Digest of System of Taxation of New York* (1902). He also made frequent addresses and contributions on economic and sociological topics.

**SEWAGE PURIFICATION.** INCREASING INTEREST IN SEWAGE PROBLEMS. Considering the vast amount of experimental and practical work already done in the field of sewage disposal the problems still awaiting a satisfactory solution are various and troublesome. These problems, however, relate to details of construction and operation and to costs rather than to sanitary efficiency. The number and difficulty of the problems attendant on sewage disposal are largely accounted for by the fact that sewage is a complex substance and that its treatment and final disposal is influenced not only by the complex character of the material itself, but also by the number and variety of local conditions which must be met and which are rarely the same in any two communities. The composition of sewage varies with the character of the city, whether purely residential, chiefly industrial, or mixed; and again with the character of the population and of the local industries; and still further from hour to hour and even from day to day. Then, too, the degree and character of treatment required varies largely with the kind and volume of water which is to receive the final effluent and the uses to which the water is put in relation to the health and comfort of the people adjacent to or dependent on the water. The real nature of the sewage disposal problem, with its many complexities, is being appreciated in these later days as never before. As a result, a rational view of the subject is becoming more common and there is less attempt than formerly to insist on hard and fast rules as to either methods which must be adopted or results which must be attained.

Two notable examples of the final prevalence of a rational view were afforded during the year, one in connection with the proposed disposal of the sewage of the Passaic River Valley municipalities into New York Bay and the other in connection with the proposed discharge of the sewage of Rochester, N. Y., into Lake Ontario. In each case a compromise was

effected which, while recognizing the necessity of partial purification, stopped far short of the extremes which had been urged by some of the champions of a high degree of purification or even the exclusion of the sewage from the waters in question.

**SEWAGE IN NEW YORK HARBOR.** In the case of New York Harbor the State of New York had brought suit for an injunction against the discharge of the sewage of the New Jersey communities into those waters, and the United States had sought and been granted intervention in the suit. The United States suit was withdrawn in 1910, on a stipulatory agreement between the two sides of the controversy. The Passaic Valley Sewerage Commission agreed to build more efficient sewage purification works than it had at first proposed. The amended plans provided for: (1) coarse screens; (2) grit chambers; (3) self-cleaning screens with meshes having a clear opening of not over 0.4-in; (4) sedimentation tanks so proportioned as to detain the sewage not less than  $1\frac{1}{2}$  hours at levels of average daily flow; (5) discharge of the final effluent into at least a 40-foot depth of water through at least 150 separate outlets, so exposed as to give a sewage disposal area of  $3\frac{1}{2}$  acres or more, the discharge to be in a horizontal rather than an upward direction. Furthermore, the works must be so designed, constructed, and operated as to produce no visible suspended particles of sewage in the bay; no deposits objectionable to the Secretary of War; no odors due to putrefaction; a practical absence of grease or color on the surface of the bay; no injury to public health, nor to property of the United States located in or on the harbor; nor may the sewage effluent so reduce the dissolved oxygen in the waters of the harbor as to interfere with major fish life. It was expected that New York State would follow the United States in withdrawing its suit, but this had not been done up to the close of the year.

The Metropolitan Sewerage Commission of New York, which has made extensive technical studies of the existing and prospective pollution of New York Harbor, declared the compromise provisions just outlined insufficient to protect New York City and advised the city to petition for the right to intervene in the suit. Such a petition was filed in the United States Supreme Court, but was promptly denied.

**THE SEWAGE QUESTION IN ROCHESTER, N. Y.** At Rochester, N. Y., the authorities proposed to divert the untreated sewage of the city from the Genesee River to Lake Ontario, with coarse screening and a short period of sedimentation before final discharge. The local press made strong protests and appeared to demand a high degree of purification. In due course the proposed plans were submitted to the State Department of Health for approval. The Department supplemented the advice of its own chief engineer with that of three outside engineers of national standing. The consensus of opinion was a virtual approval of the plans submitted by the city, which had been based on thorough-going engineering studies. The State Department of Health required some relatively slight changes in the plan, and then gave its approval, with the reserved power of requiring further changes should experience indicate that they are necessary. The Rochester case is notable for the recognition given to the principle that under proper circumstances sew-

age disposal by dilution, or in water is as proper as disposal on land.

**VARIOUS EXPERIMENTS.** The experiments in sewage purification begun by the Massachusetts State Board of Health in 1887 are still being continued. They were revived and summarized in considerable detail in the annual reports of the Board for 1908 and 1909, appearing first in pamphlet form in 1910. Likewise the sewage experiments begun considerably later at the Massachusetts Institute of Technology, Boston, Mass., are still in progress, latterly with a new equipment. A sewage experiment station has recently been established by the Sanitary District of Chicago, to help solve future problems in connection with the Chicago Drainage Canal and territory not yet tributary to the canal. During 1910 a report on sewage experiments made in 1909 at Gloversville, N. Y., was published, and a plant carrying out the conclusions of the report was put under construction. The plant will deal with domestic sewage of Gloversville combined with the industrial wastes of some two dozen tanneries. Considerable portions of the solids in the tannery wastes, however, are removed by sedimentation at the tanneries before the wastes enter the city sewerage system. The Gloversville plant will include screens, primary settling tanks, sprinkling filters, secondary settling tanks and sand filters, in the order named. The elaborate character of these works is due partly to the sort of sewage to be dealt with but largely to the very small summer flow of the stream into which the final effluent will be discharged, thus affording a marked contrast with the high degree of dilution afforded Rochester by Lake Ontario.

**THE SEPTIC TANK.** The Imhoff sewage clarification tank, a modification of the Travis hydrolytic tank, which in turn is based on the Cameron septic tank, is being used extensively in the Essen district of Germany, and has been adopted but not yet put in operation by the cities of Batavia, N. Y., and Atlanta, Ga. The aim of the septic tank is to retain the sludge or solid matters of the sewage for reduction to liquids and gases by anaërobic bacteria. To effect better control of the process than could be given by the simple rectangular septic tank, Travis, of Hampton, England, so modified the septic tank as to arrest the solid matters in one compartment and let them fall into a lower compartment for a less undisturbed and longer period of digestion than was offered by the septic tank. The sewage was so divided as to flow through both compartments, but at a lesser rate in the lower or digesting tank than in the upper or arresting tank. Imhoff uses a circular instead of a rectangular tank, and permits the sewage to flow through the upper or arresting compartment, only. The lower compartment is reserved exclusively for digesting the solids that fall to it from above, and the openings between the two are so arranged that the rising gases cannot carry solid particles into the upper compartment. It is reported that the sludge from the Imhoff tank is less offensive than that from either the Travis tank or the ordinary septic tank and that its final disposal is more readily accomplished, since after draining it resembles rich garden soil in texture. For detail of the Passaic Valley compromise, the Rochester controversy and its settlement, and the principles, design and practical operation of the Imhoff tank, see *Engineering News*, New York,

for May 12, August 11 and December 1, 1910, respectively. Kinnicut, Winslow and Pratt's *Sewage Disposal* (New York, 1910), is a notable contribution to the American literature of the subject.

**SEWERAGE.** The general principles and practice of sewerage design and construction underwent no significant change in 1910. The increasing use of concrete for sewerage conduits and tanks is giving rise to important questions as to the disintegrating effect of sewage upon concrete but no large body of conclusive evidence on the subject has yet been published. A revised edition of Folwell's *Sewerage* (New York, 1910) has appeared.

**SHAFROTH, JOHN F.** See **COLORADO, Politics and Government.**

**SHAKESPEAREANA.** See **LITERATURE, ENGLISH AND AMERICAN, Essays and Literary Criticism.**

**SHARP, WILLIAM.** See **LITERATURE, ENGLISH AND AMERICAN, Biography.**

**SHARPE, RICHARD BOWDLER.** An English zoölogist, died January, 1910. He was born in London in 1847 and was graduated in Peterborough and Loughborough grammar schools. After having filled various capacities in publishing houses, he was appointed first librarian of the Zoölogical Society of London, in 1867, serving until 1872. In the latter year he was appointed senior assistant in the department of zoölogy in the British Museum. Here he remained until 1895, when he became assistant keeper of the sub-department of vertebrata in the British Museum. He was one of the best known of modern ornithologists, and among his published works are the following: *Catalogue of Birds in the British Museum* (27 vols.);

*Monograph of Alcedinidæ Hirundinidæ and Paradisidæ.* He was the editor of Allen's *Naturalists' Library*. In 1905 he was president of the fourth International Ornithological Congress.

**SHAW, CHARLES HUGH.** American botanist and educator, died August 8, 1910. He was born at Delaware, O., in 1875 and graduated from Ohio Wesleyan University in 1897. From 1895 to 1897 he was instructor of botany in that institution and from 1898 to 1903, professor of botany at Temple University. In 1900-02 he was lecturer at Woods Hole. He was the author of several works on botanical subjects.

**SHEEP.** See **STOCK RAISING.**

**SHELDON, EDWARD.** See **LITERATURE, ENGLISH AND AMERICAN, Poetry and Drama.**

**SHERRY.** See **LIQUORS, FERMENTED AND DISTILLED.**

**SHIPBUILDING.** Lloyd's Returns of Shipbuilding for 1910 gave the total merchant shipping launched during the year throughout the world as 1,975,853 tons, exclusive of warships and vessels of less than 100 tons. Of this Great Britain and Ireland were responsible for 58½ per cent.; the United States, 17 per cent., mostly for lake and inland navigation; Germany 8.15 per cent.; France, 4.13 per cent.; Holland 3.63 per cent, and still smaller percentages for other countries. The 1910 figures show substantial gains for most of the nations represented, that of France amounting to 91½ per cent.; Germany nearly 24 per cent., Holland 20 per cent., the United States, excluding river and harbor tonnage, 39 per cent., and the United Kingdom 15.13 per cent. The figures are given in detail in the accompanying tables.

TABLE SHOWING THE TONNAGE OF VESSELS OF 100 TONS GROSS AND UPWARDS (EXCLUDING WARSHIPS) LAUNCHED IN THE UNITED KINGDOM AND ABROAD DURING THE YEARS 1905 TO 1910  
(From *Engineering*, London)

Yr.	United Kingdom.	Austria Hungary	British Colon.	Denmark.	France.	Germany.	Holland	Italy	Japan	Norway	United States	Other Countries	Total
	tons	tons	tons	tons	tons	tons	tons	tons	tons	tons	tons	No.	tons
'05	1,623,168	16,402	10,798	17,557	73,124	255,423	44,135	61,629	31,725	52,580	302,827	25,354	1576 2,514,922
'06	1,828,343	18,590	26,042	24,712	35,214	318,230	66,809	30,560	42,489	60,774	441,087	26,913	1836 2,919,763
'07	1,607,890	8,717	46,443	28,819	61,635	275,003	68,623	44,666	66,254	57,556	474,875	37,807	1788 2,778,088
'08	929,669	23,502	34,181	19,172	83,429	207,777	58,604	26,864	59,725	52,839	304,543	32,981	1405 1,833,286
'09	991,066	25,006	7,461	7,508	42,197	128,696	59,106	31,217	52,319	28,601	209,604	19,270	1063 1,602,057
'10	1,143,169	14,304	26,343	12,154	80,751	159,303	70,945	23,019	30,215	36,931	331,318	29,401	1277 1,957,853

TABLE SHOWING THE NUMBER AND DISPLACEMENT OF WARSHIPS OF 100 TONS AND UPWARDS LAUNCHED FOR THE VARIOUS NAVIES DURING THE YEARS 1905 TO 1910  
(From *Engineering*, London)

Year	British	U. S.	French	German	Italian	Japanese	Russian	Other flags	Total.
	tons	tons	tons	tons	tons	tons	tons	No.	tons
1905	96,505	98,200	28,611	36,487	14,490	50,633	15,721	22,504	118 362,211
1906	85,700	45,443	15,183	62,678	3,039	41,277	82,204	27,448	148 362,972
1907	133,405	11,590	33,794	14,800	25,154	57,200	35,317	10,151	142 321,211
1908	49,560	52,850	21,600	97,660	29,400	2,245	8,800	47,574	127 309,689
1909	98,790	48,639	95,740	99,116	2,088	375	1,246	58,481	151 404,475
1910	133,525	30,287	24,063	49,024	19,374	23,100	.....	31,481	122 310,854

During the year eight large steamers of 10,000 tons or over were constructed in British yards. These are given in the table on the following page.

For another year Messrs. Harland and Wolff of Belfast have the record for the construction of the largest tonnage launched in one year in the United Kingdom. Their total was 115,861 gross tons put into the water during 1910 as compared with 29,708 tons in 1908. The 1910 record of the Belfast shipbuilding firm has only been exceeded once by any single firm, which was in 1906, when Messrs. Swan, Hunter and Wigham Richardson launched from their ship-

yards a gross tonnage of 118,639 including in this amount the Cunard liner *Mauretania*.

**LAUNCH OF THE OLYMPIC.** On October 20 there was launched at Belfast from the shipbuilding yards of Harland and Wolff the *Olympic*, the world's greatest steamship. The new vessel is equipped with combined turbine and reciprocating machinery which had proved so successful in the *Laurentic*, a smaller ship also of the White Star Line. The *Olympic* is 888½ feet in length, 92½ feet in breadth overall, 97 feet breadth over boat deck, 105½ feet in height from bottom of keel to top of captain's house or 175 feet to the top of the funnels, has a maxi-

# AGGREGATES OF PRODUCTION IN THE UNITED KINGDOM. (From *Engineering*, London.)

	1910	1909	1908
	<i>Tons</i>	<i>Tons</i>	<i>Tons</i>
Steam tonnage* .....	1,244,930	1,131,549	980,600
Sailing tonnage† .....	43,860	25,827	54,200
Totals .....	1,288,590	1,157,176	1,034,800
His Majesty's Dock-yards .....	52,852	46,320	42,426
Grand totals .....	1,341,442	1,203,496	1,077,226
Foreign-owned tonnage	245,636	317,000	376,600
Per cent. of total .....	18.3	25.3	35
Total merchant tonnage†† .....	1,209,255	1,078,436	992,250
Per cent. of steam merchant tonnage to total merchant tonnage	96.5	98	95
Horse-power of engines	1,671,600	1,484,810	1,167,140
Per cent. of all Naval tonnage to merchant tonnage .....	10.9	11.6	7.5

\* Includes warships built in private yards.

† Includes floating docks.

†† Excludes British and foreign warships.

# TONNAGE OF SHIPS LAUNCHED (INCLUDING WARSHIPS) IN EACH MARITIME COUNTRY (From *Engineering*, London.)

	1907	1908	1909	1910
Austria-Hungary .....	10,311	39,115	47,223	29,297
Belgium .....	16,542	16,300	6,316	6,226
British Colonies ..	46,603	34,181	7,941	26,343
China .....	.....	.....	.....	3,942
Denmark .....	28,819	22,764	7,508	12,371
France .....	96,924	105,455	137,937	105,114
Germany .....	291,203	305,977	228,069	210,367
Greece .....	930	.....	1,385	.....
Holland .....	68,724	59,156	65,522	71,781
Italy .....	69,820	56,264	33,405	52,073
Japan .....	127,354	62,085	52,694	53,315
Norway .....	57,756	53,389	28,601	37,481
Portugal .....	306	302	400	3,350
Russia .....	37,340	9,720	4,331	4,395
Spain .....	3,966	5,210	2,174	3,234
Sweden .....	12,206	10,804	7,487	9,869
U. S. .....	486,265	357,393	258,243	361,605
Other countries ..	670	846	.....	150
Total foreign and colonial ..	1,356,934	1,139,120	889,236	990,893
Total for United Kingdom ..	1,742,365	1,003,865	1,117,296	1,277,814
Total for world .....	3,009,299	2,142,975	2,006,532	2,268,707

mum draft of 37½ feet and about 60,000 tons displacement. It is but natural to compare this vessel with the *Mauretania*, the next largest steamship and one which the *Olympic* closely resembles. The Cunard liner has a length of 790 feet and a displacement of about 45,000 tons at the same draft. On account of the huge size the launching of the *Olympic* presented many unique engineering features, and the launching weight of the vessel, about 27,000 tons, was the record weight ever transferred from land to water. A system of hydraulic triggers was arranged to hold the ship on the way and by the mere opening of a valve these were released and the ship was launched, the entire operation being executed with great success. It is quite obvious that in all the structural parts and machinery great masses of metal were involved and castings, beams, plates, propellers, shafting and other elements all reaching extraordinary size

# NOTABLY LARGE MERCHANT STEAMERS BUILT IN BRITISH YARDS IN 1910

Name	Tons	L. H. P.	Builders
White Star liner Olympic .....	45,500	51,500	Harland and Wolff, Belfast.
Cunard liner Franconia .....	19,150	14,500*	Swan, Hunter and Wigham Richardson, Newcastle.
Union-Castle liner Edinburgh Castle .....	13,326	13,000	Harland and Wolff, Belfast.
Maloja .....	13,000	12,570	Ditto Ditto
Aberdeen liner Themistocles .....	11,500	5,850	Ditto Ditto
New Zealand liner Rotorua .....	11,130	.....	W. Denny and Bros. Dumbarton.
Holt liner Eneas .....	10,049	6,000	Workman, Clark and Co. Ltd., Belfast
Holt liner Ascanius .....	10,049	6,000	Ditto Ditto

\* Engines by Wallsend Slipway and Engineering Co.

and dimensions. The engines were designed to develop 45,000 horse-power which will maintain a speed of 21 knots. The two reciprocating engines drive the wing propellers, while the exhaust steam at lower pressure passes into a low pressure turbine, this arrangement having been found most economical and efficient. The *Olympic* was designed to furnish the maximum comfort for 2500 passengers and make the transatlantic trip at moderate speed. The crew numbers 860.

At the end of the year such progress had been made with the construction of the *Olympic* that the official announcement was made that the ship would leave Southampton and Cherbourg on her maiden voyage to New York on June 14. This would give less than eight calendar months for the completion of the ship from the time of her launching on October 20 and indicates much greater speed than was shown in the case of the *Lusitania* and *Mauritania* which required twelve months fitting out after they had been put overboard.

After the launch of the *Olympic* the most important event was the commencement of work on the *Europa* a new liner of even greater dimensions for the Hamburg-American Line for its transatlantic service. This new vessel whose keel was laid during the year is to be 900 feet in length, 96 feet beam, with a tonnage of 50,000. It will have an extreme displacement of between 60,000 and 70,000 tons and will have nine decks above the water line. The *Europa* is designed to accommodate without crowding 4250 passengers or more persons than the three largest hotels in New York combined. Comfort and convenience for those making the ocean voyage rather than extreme speed are the objects aimed at by the designers of the ship.

UNITED STATES SHIPBUILDING. The Commissioner of Navigation reported 1196 sail and steam vessels of 334,900 gross tons built in the United States and officially numbered during the year ended December 31, 1910, as shown in table on page 660.

SHIPBUILDING ON THE GREAT LAKES. During the year 1910, there were 51 vessels of all classes built on the Great Lakes, an increase of 12 over the year 1909; and as to size and carrying capacity, the output in 1910 was greater by 24,000 tons than in 1909. There were 20 steamers of more than 5000 tons each built, of which the *William B. Palmer*, 7600 tons, is the largest; and the total cargo carrying capacity of this group amounts to 194,500 tons. In the design of several of these great bulk freight

	Wood				Steel				Total	
	Sail		Steam		Sail		Steam			
	No.	Gross	No.	Gross	No.	Gross	No.	Gross	No.	Gross
Atlantic and Gulf .....	83	8,982	437	16,266	4	1,023	54	108,436	578	134,707
Porto Rico.....	5	109	4	36			1	92	10	237
Pacific .....	10	1,496	234	7,141			9	10,253	253	18,890
Hawaii .....										
Great Lakes .....	2	55	153	3,092			56	173,793	211	176,940
Western Rivers.....	1	8	140	4,086			3	32	144	4,126
Total .....	101	10,650	968	30,621	4	1,023	123	292,606	1,196	334,900

There were 345 unrigged vessels of 55,840 gross tons numbered during the same period.

carriers, the longitudinal system of framing is adopted.

On the Canadian shores of the Lakes, the largest vessel of the past year was launched at Collingwood, Ontario, to carry coal, ore and grain in bulk. She is 525 feet long, 56 feet beam and 31 feet in depth, and can transport 350,000 bushels of grain in her hold. A triple expansion reciprocating engine of 2400 horsepower driving a single screw was expected to give the ship a speed of 13 miles an hour loaded. As is the custom on cargo ships on the Great Lakes, a luxurious suite of rooms was fitted up for the occupancy of the owner and his guests.

**GREAT BRITAIN.** To the British merchant ships of 1910 only five were fitted exclusively with turbines. Two others had reciprocating engines on wing shafts and a low-pressure turbine using the exhaust from them on a centre shaft.

**GERMANY.** The total shipbuilding output in Germany during 1910, as reported by Lloyds, was 159,393 tons—an increase of about 31,000 tons as compared with 1909, but at the same time the total was only half what it was in 1906. The largest ship completed by Germany in 1910 was of 8000 tons, and there were eight others exceeding 5000 tons. No large sailing ship was built. The warship work was only about half what it was in the two years preceding.

**FRANCE.** The year 1910 was remarkable so far as France was concerned in the construction of the largest ship yet built in that country, the trans-atlantic liner *France* of about 23,000 tons, launched at St. Nazaire; she is to be fitted with Parsons turbines. From the Seine yard there was launched the *Sant' Anna*, of 9350 tons. The other vessels were of less than 5000 tons, and the total made up 80,571 tons, which was nearly double the total in 1909, but 2700 tons less than in 1908. As regards warships, there was only a total of 24,036 tons, which is only one-fourth of the tonnage of the previous year, but compares favorably with the earlier years of the century.

**HOLLAND.** The total tonnage credited to Holland (70,945 tons) in 1910, exceeded by nearly 12,000 tons the figures for 1909. This total does not include vessels known to be exclusively intended for river navigation. The tonnage of barges, lighters, and other river vessels launched during 1910 amounts to about 15,000 tons. Three steamers of 5000 tons and upwards were launched, the largest being the *Princess Juliana*, 8055 tons, built at Amsterdam.

**NORWAY.** The output for 1910 in Norway amounted to 36,931 tons. This was an increase of about 8000 tons on the 1909 figures, but is a much smaller total than that returned for several previous years. The figures include only two vessels of over 1500 tons, the largest being of 1701 tons.

**JAPAN.** The figures for Japan (30,215 tons) continued to show a decreasing output, which is 22,000 tons less than that of 1909. Included are two steamers of about 6000 tons each. The warship output was, however, much higher than in the two years preceding.

The only other countries with an output of over 20,000 tons were the British Colonies (26,343 tons) and Italy (23,019 tons). The total for the British Colonies included one steamer of about 6500 tons, built at Collingwood, Ont., already mentioned. Among the vessels launched in Italy were four steamers capable of a speed of 22 knots, two of which were fitted with turbines. The tonnage of Italian warships launched (19,374 tons) was above the average.

**SAILING VESSELS.** The largest sailing vessel in the world was completed at Bordeaux for a firm of shipowners in Rouen, whence she was to sail for India and Australia. She is 427 feet long, 56 feet beam and is confidently expected to be capable of making 17 knots speed under sail alone. An auxiliary gas engine is installed, however, that will propel her at 11 knots speed alone. A notable and unusual feature of the ship is the accommodation provided for a limited number of passengers, as it is said that a demand exists for sailing trips to the far East; and, as an experiment, the owners have furnished the cabins in a comfortable and attractive manner.

For Warship Construction see **NAVAL PROGRESS**.

**SHIPPING.** See paragraphs on subject in articles on countries and on States of the United States.

**SHIPPING.** The table at top of page 661 gives the number and net gross tonnage of steam and sailing vessels of over 100 tons of the several countries of the world, as recorded in Lloyd's register for 1910-11.

**SHIPPING SUBSIDIES.** Nearly every important country grants some kind of bounty or subsidy to encourage its shipping or shipbuilding industry. Most subsidies are designed to encourage both industries though most of them apply directly to the shipping industry and indirectly stimulate shipbuilding. England, France, Germany, Italy, Russia, Austria, Norway, Holland, Spain, Portugal, Brazil, Canada, Japan, Australia and other British Colonies pay mail subsidies, though in some cases the amounts are very slightly in excess of established postal rates or mail pay. A second kind of subsidies are known as shipping or navigation bounties for the encouragement of the merchant marine. France, Japan, Italy, Spain and Austria pay these. Third are the naval, admiralty, naval reserve, or armament subventions paid on condition that vessels have a certain minimum speed and required structural

Flag	Steam			Sail		Total	
	Number	Net tons	Gross tons	Number	Net tons	Number	Tonnage
British:							
United Kingdom .....	8,460	10,203,642	16,767,683	957	748,796	9,417	17,516,479
Colonies .....	1,377	756,887	1,291,354	701	204,461	2,078	1,495,815
Total .....	9,837	10,960,529	18,059,037	1,658	953,257	11,475	19,012,294
American (United States):							
Sea .....	1,073	1,071,645	1,641,919	1,701	1,119,686	2,774	2,761,605
Lake .....	563	1,623,350	2,146,769	43	109,850	606	2,256,619
Philippine Islands .....	76	23,900	38,326	13	2,128	89	40,454
Total .....	1,712	2,718,895	3,827,014	1,757	1,231,664	3,469	5,058,678
Argentine .....	195	82,635	139,705	72	23,716	267	163,421
Austro-Hungarian .....	365	485,954	777,729	4	1,300	369	779,029
Belgian .....	159	194,336	295,913	6	3,725	165	299,638
Brazilian .....	313	143,204	233,358	70	18,385	383	251,753
Chilean .....	98	73,076	114,887	41	36,331	139	151,218
Chinese .....	68	58,024	90,420	.....	.....	68	90,420
Cuban .....	54	36,138	58,410	6	1,035	60	59,445
Danish .....	553	393,564	671,828	310	64,734	863	736,562
Dutch .....	532	607,822	983,049	96	32,144	628	1,015,193
French .....	875	836,386	1,448,172	590	434,108	1,465	1,882,280
German .....	1,822	2,416,459	3,959,318	356	373,868	2,178	4,333,186
Greek .....	298	312,798	499,184	110	28,397	408	527,581
Haytian .....	5	2,017	3,387	.....	.....	5	3,387
Italian .....	450	598,204	987,559	630	333,094	1,080	1,320,653
Japanese .....	846	726,761	1,146,977	5	2,245	851	1,149,222
Mexican .....	41	17,480	28,737	16	3,878	57	32,615
Norwegian .....	1,312	859,628	1,422,006	753	592,527	2,065	2,014,533
Peruvian .....	13	5,364	10,581	44	21,006	57	31,587
Portuguese .....	77	48,853	79,109	113	31,074	190	110,183
Rumanian .....	22	16,690	31,688	1	285	23	31,973
Russian .....	642	402,616	660,528	599	196,797	1,241	887,325
Sarawak .....	5	2,426	4,073	.....	.....	5	4,073
Siamese .....	11	7,792	12,907	.....	.....	11	12,607
Spanish .....	511	459,553	746,748	68	18,712	579	765,460
Swedish .....	964	464,463	782,508	508	135,571	1,472	918,079
Turkish .....	142	69,438	112,206	190	63,663	332	175,869
Uruguayan .....	36	30,321	45,711	18	14,701	54	63,412
Venezuelan .....	7	1,856	3,166	5	692	12	3,858
Other countries: Bulgaria, Colombia, Costa Rica, Ecuador, Egypt, Hon- duras, Liberia, Nicaragua, Oman, Panama, Persia, Salvador, Samoa, Zanzibar, etc. ....	42	12,840	22,080	24	7,151	66	29,231
Total .....	22,008	23,046,122	37,290,695	8,050	4,624,070	30,058	41,914,765

features and be available for naval purposes in war time. England and France have developed this class of subsidies in excess of other nations. A fourth class includes the construction or shipbuilding subsidies paid at a certain rate per ton on home built vessels. These are paid by France, Spain, Italy, Japan and Austria. A similar purpose is served in Germany by free importation of and low freight rates on all materials used in shipbuilding. Other encouragements are discriminating duties in favor of goods carried in national vessels; favorable harbor and canal tolls; and in Germany low railway rates on goods for export in German vessels.

The annual subsidies of Great Britain amount to \$5,800,000; of British colonies, \$3,800,000; of Germany, \$2,400,000; of Australia, \$3,000,000; of France, \$13,000,000; Italy, \$3,800,000; Spain, \$3,200,000; Japan \$4,500,000; Russia, \$2,000,000; Norway, \$1,200,000, and Holland, \$900,000. These are approximately the amounts paid in 1908; the totals vary from year to year owing to variations in the different items.

**AMERICAN.** For many years bills providing for general ship subsidies have been before Congress. These measures usually provide for an extension of the existing mail subsidy established in 1891, and the inauguration of subsidies on merchant vessels and on deep-sea fishing vessels. Under the act of 1891, which grants much higher rates for carrying mail to American than to foreign vessels, the total subsidies equaled \$1,189,000 in 1908. Of this 62 per cent. was paid to 20-knot vessels of the American Line to Southampton; 17 per cent. to 16 to 18 knot vessels to Cuba and Mexico; nearly 10 per cent. each to

12 to 14 knot vessels to Jamaica and Venezuela, and \$37,962 to the Oceanic running to Tahiti. It was proposed in legislation before Congress in 1910 to increase and diversify the subsidies as a means of developing American merchant marine and encouraging American shipbuilding.

**ARGUMENTS FOR.** The principal ground on which this proposal is based is the decline of American shipping since 1860. The total documented merchant marine of the United States decreased from 5,539,800 tons in 1861 to 4,068,000 tons in 1880; it thereafter rose to 5,164,800 tons in 1900, and to 7,508,082 tons in 1910. But the tonnage registered in the foreign trade was 2,496,894 in 1861; 1,352,800 in 1880; 826,700 in 1900; 954,500 in 1905, and 782,515 in 1910. Whereas in 1861 we carried practically all our own trade and a large proportion of that of the rest of the world, in the last few years American ships have carried less than 10 per cent. of our foreign trade.

In this connection the growing importance of South American and Oriental trade is emphasized. The United States enjoys a relatively small proportion of South American trade, in spite of our proximity and political advantages. It is not unusual for an entire year to pass without a single American steamship entering the ports of Buenos Ayres or Rio Janeiro. It is argued that much American mail and trade are carried first to Europe in subsidized vessels and then to South America in other subsidized vessels. This for all practical purposes gives European merchants the advantage.

Then it is contended that subsidies are a logical part of the protectionist policy to which the

country is pledged. American workmen demand higher wages; and, after vessels are built American seamen require better pay and conditions than do foreigners. The more zealous protectionists declare that it would be un-American and unpatriotic to allow foreign built vessels, though owned by Americans, to sail under the American flag. They contend, moreover, that this would not overcome the effects of foreign subsidies. Similarly they declare the plan of discriminating duties in indirect trade to be not feasible since this would require the abrogation of more than a score of trade treaties and would be followed by retaliatory duties. The infantry industry argument is used; shipbuilding it is said is our only unfostered industry, and to develop it will benefit first one section of the country and then by diffusion all sections.

The extremity to which the protagonists of subsidies go is illustrated by the argument that we must build up a merchant marine for our navy to protect. That is, we are spending millions on a navy that is of little use until American merchant vessels frequent the high seas. Very similar is the argument that we must create shipping to use the Panama Canal; the advantages of this great undertaking can be secured to the United States only when we have many vessels passing through it.

Much sounder are the arguments based on the probable effects of war. It is held that a war involving those nations upon which we now depend to carry our goods would prove disastrous to our foreign commerce. Again it is pointed out that foreign countries have built up an auxiliary navy and transports available in war by means of subsidies; whereas the United States required foreign transports when its fleet toured the world. It is argued that our new navy would prove powerless in war without the support of auxiliary cruisers and transports.

**ARGUMENTS AGAINST.** Those contending against the proposed measure admit the great decline in our foreign shipping and the fact that we pay foreigners about \$200,000,000 per year for carrying our goods. But they find in this no cause for alarm, since this indicates that American labor and capital have found more profitable employment in the development of the rich internal resources of the country, and that foreign vessels carry our trade more cheaply than we can afford to do it ourselves. They hold that as it becomes profitable to do so American capital will seek investment in shipping; that there is at present no lack of foreign vessels to carry our goods; and that therefore it is uneconomical to divert our energies to the relatively less productive lines of shipping and shipbuilding. With this goes the contention that a subsidy is class legislation—the taxation of all for the benefit of a few and that it is not desirable, at a time when the country is demanding a radical reduction of tariff duties, to create a new class of favored interests.

It is said that the best means of developing our South American trade is to establish branch banks in principal ports; to send out well-equipped agents; and to systematically cultivate the interests of foreign merchants.

Many feel that the first step of all should be to open American registration to foreign built but American owned vessels. This would at once increase our shipping and make available transports for use in war. At the same time shipbuilding should be encouraged by al-

lowing the free importation of all materials intended for use in the construction of vessels. Then there is a plan for discriminating duties, whereby goods brought in American vessels are taxed at a lower per cent. than those carried in foreign vessels. This is sometimes modified so as to apply only to indirect trade. By this device goods carried in American vessels or in vessels of the country exporting the goods would pay lower duties than those carried in the vessels of a third nation. Those advocating discriminating duties in preference to subsidies hold that the resulting disturbance to our trade treaties would be slight. At any rate there is no guarantee that American subsidies will not be met by higher subsidies abroad or even by higher tariff duties.

Then the plan is said to have been futile in those countries that have tried it. Most foreign subsidies have been granted the mail steam-ships and for short periods of time. Great Britain pays no subsidies for the carrying of goods and yet she has more than half the world's tonnage. France has paid larger subsidies than any other nation and yet has a relatively small and inefficient merchant marine.

**JAPAN.** Amendments to the Japanese laws for the encouragement of navigation and shipbuilding, became effective January 1, 1910. A general navigation subsidy is provided for all home-built steel steamships of at least 12 knots speed and not over 15 years old, and engaged on any four routes, the European, South American, North American and Australian. Subsidies one-half as great are granted to approved foreign-built vessels not more than five years old. The total cost of these navigation subsidies for 1910-11 was estimated at 7,260,000 yen (about \$3,600,000). The law for the encouragement of shipbuilding divides vessels into two general classes of four grades each according to size and speed with subsidies ranging from 11 yen to 22 yen per ton. The total construction in Japanese yards in 1908 was 137 vessels with a total tonnage of 246,764 tons.

**SHIRT-WAIST MAKERS' STRIKE.** See STRIKES.

**SHOEMAKER, JOHN DIETCH.** An American physician and educator, died October 11, 1910. He was born in Chambersburg, Pa., in 1852 and graduated from Dickinson College in 1872. He studied medicine at the Jefferson Medical College in 1874. From that year until 1886 he was demonstrator and lecturer on anatomy at the Jefferson Medical College and from 1886 until his death was professor of cutaneous diseases and of materia medica and therapeutics. He was a founder of the *Medical Bulletin* in 1879, of the *Medical Register* in 1887, and later was editor of the *Medical Times and Register*. He was a member of several American and foreign medical associations and was delegate to the ninth, tenth and eleventh International Medical congresses. From 1901 to the time of his death he was president of the Board of Charities and Corrections for the city and county of Philadelphia. He was also surgeon-general to the national guard of the State. He wrote extensively on medical subjects and among his published works are the following: *Poisons and Antidotes*; *Treatise on Materia Medica and Therapeutics*; and *A Practical Treatise on Diseases of the Skin*.

**SHOES.** See BOOTS AND SHOES.

**SHOOTING.** More interest was shown in

shooting matches by the soldiery of the United States in 1910 than ever before with the result that unusually high scores were made. In the matches held under the auspices of the National Rifle Association of America the individual championship was won by Corporal George Farnham of the United States Marine Corps, who scored a total of 547. Other events and winners were: Wimbledon Cup (100 yards), Captain G. H. Emerson, Ohio National Guard; Leach Cup (800, 900 and 1000 yards, seven shots at each distance), Lieutenant C. L. Sturdevant, Engineer Corps, U. S. A.; Long Range Tyro Match (1000 yards), Sergeant Scott Clark, Indiana National Guard; President's Match, Sergeant W. A. Fragner, United States Marine Corps; Press Championship of the United States, A. E. Gaartz, Milwaukee Sentinel; Individual Rapid Fire Match, D. A. Dixon, U. S. A.; Regimental Team Championship, Sixth Massachusetts Infantry; Company Team Championship, Fourth Company, United States Naval Academy; Revolver Team Championship, First Squad Cavalry, Colorado National Guard.

The eleventh annual tournament of the United States Revolver Association was held September 18-25 in twenty-two different places. The revolver championship at 50 yards was won by J. R. Hicks of New York. Other events and winners were: Military Revolver Championship, W. H. Whigam of Chicago; Pistol Championship, J. A. Dietz of New York; Military Record Match, Samuel Peterson of Chicago; Military Revolver Team Match, First Cavalry, Illinois National Guard; Grand Aggregate Medal, A. P. Lane of New York.

An international small bore match between the United States, Great Britain and Australia, each team consisting of 50 men, was won by the United States with a score of 24,539. Great Britain finished second with 24,439 and Australia last with 23,883. The most noteworthy performances of the year in trap shooting were those of J. R. Graham, an amateur, who made 417 straight targets, Harry S. Wallis, who ran 138 straight from the 20-yard line and W. R. Crosby who scored 390 out of a possible 400.

The professional champion of the year was Fred Bills and the amateur J. R. Graham. In a match between teams from the United States and Canada, the United States was the victor by a score of 212 to 193.

**SHORE, R.** See **LITERATURE, ENGLISH AND AMERICAN, Travel and Description.**

**SHORT BALLOT.** A steady growth of public opinion in behalf of the short ballot idea is to be noted. The New York Short Ballot Organization did good work in preparing a resolution and getting it introduced at Albany. The resolution called for a constitutional amendment, taking all the minor officers off the ballot and making them appointive by the governor. The measure secured considerable publicity throughout the State, although it was defeated in committee. Further work in New York State on this measure is probably impossible on account of the nearness of the Constitutional Convention of 1916. The committee of the New York State Legislature, which made a journey through the West to study direct primaries, reported against direct primaries and said that the short ballot was the real remedy for our political ills. This made the short ballot somewhat conspicuous in direct primary discussions in New York State, and it was always referred

to by Governor Hughes in his speeches. Outside of New York and New Jersey, where Governor Hughes and Governor Fort had much to say regarding the short ballot, the subject has come up in politics in Ohio, where Mr. Garfield, who tried to obtain the Republican nomination for governor, made the short ballot one feature of his progressive platform. The supporters of Governor Vessey, who was a candidate for reelection in South Dakota, used short ballot arguments to oppose a local plan of their opponents for making the warden of the State prison and the keeper of the State insane asylum and all other State officers elective by party vote. Ex-Governor Hay of Washington, running for reelection, made short ballot ideas part of his platform. The Keystone party in Pennsylvania put a short ballot plank in its platform. Generally speaking, the attitude of the public toward the short ballot continues to be cordial and receptive. In Pennsylvania a resolution to amend the constitution of the State so as to open the way for appointive elections (now elected by districts) has been introduced. It is the same amendment that was defeated in the November (1909) elections, under the impression that it was undermining democracy.

The first specific plank in the California Republican platform was a pledge to enact a short ballot law, and the State Central Committee has appointed a sub-committee on election laws, which is instructed among other things to prepare for presentation to the legislature, a bill for short ballot reform. This committee will present a county government bill, which will provide for the short ballot in counties, and doubtless also a bill providing for the easier adoption of the commission plan of government in cities. The general committee will, it is expected, present a somewhat radical bill greatly curtailing the ballot in State elections.

Involving as it does constitutional changes, there is very little more to report in the way of concrete accomplishment, although the adoption of the commission form of government represents one form of short ballot, and in this direction there has been a very substantial advance during the past year. Moreover, the agitation of the short ballot idea has brought about a more wide-spread consideration of the whole question of our governmental machinery, with the result of awakening the people to their duty and responsibility in the premises. Some idea of the need for a short ballot may be gathered from the statement that the ballot voted in South Dakota in November, 1910, was eight feet long.

**SHORTER, C. K.** See **LITERATURE, ENGLISH AND AMERICAN, Biography.**

**SHOTWELL, W. G.** See **LITERATURE, ENGLISH AND AMERICAN, Biography.**

**SHOWALTER, J. W.** See **CHESS.**

**SHOWERMAN, GRANT.** See **LITERATURE, ENGLISH AND AMERICAN, Essays and Literary Criticism.**

**SIAM.** An independent kingdom in south-western Asia. Capital, Bangkok.

**AREA, POPULATION, ETC.** Approximate area, 200,000 square miles. Estimated population, 6,687,000, made up of Siamese, Chinese, Shans, Laos, Malays, Burmese, Cambodians, and (1909) about 1800 Europeans. Bangkok has 628,675 inhabitants. The official religion is Buddhism, and education is largely in the hands of the priests.

**PRODUCTION.** Owing to the debt-bondage system, which renders the inhabitants virtually a nation of serfs, the country has been but inadequately developed. The late king, however, issued decrees looking to the ultimate abolition of slavery, and improved conditions are confidently expected. Rice is the chief export, as well as the staple food of the people; and the acreage has been greatly increased by irrigation. In 1907-8, 795,855 tons were exported; in 1908-9, 918,367 tons. The first rice-mill was built in 1858, and the industry has grown until it now supports in all large and small mills to the number of 47. Pepper, sesame, cotton, tobacco, fruits and coffee are grown and cattle are raised in considerable numbers. Dense forests cover large northern areas, where the teak-cutting industry is carried on, mostly by British enterprise. The planting of rubber is encouraged. The mineral deposits, including gold, coal, iron, zinc, manganese, and antimony, are little worked. Tin alone is mined on a considerable scale; rubies and sapphires are exported. Quantities of fish are taken along the coasts.

**COMMERCE AND COMMUNICATIONS.** Trade is almost entirely in the hands of foreigners; the value of the sea-borne trade for three years is as follows:

	1907-8	1908-9	1909-10
Imports .....	£5,784,985	£5,781,219	£5,279,000
Exports .....	7,332,241	7,582,866	7,756,000

Rice export in 1907-8, £5,556,560; 1908-9, £5,975,162; 1909-10, £6,433,000. Teak exported in 1907-8, £981,513; 1908-9, £887,463; 1909-10, £527,000. The details of the sea-borne trade for 1908-9 are given below in thousands of pounds sterling:

Imports.		Exports.	
Cottons.....	1,035	Rice.....	5,975
Treasure.....	752	Teak.....	887
Iron, etc.....	336	Other woods.....	22
Silks.....	292	Fish, etc.....	170
Gunny sacks.....	222	Hides.....	83
Sugar.....	193	Treasure.....	53
Kerosene.....	149	Pepper.....	41
Opium.....	134	Salt.....	33
Cotton Yarn.....	114	Silks.....	29
Hardware.....	89	Silk, raw.....	16
		Sticklac.....	10
Various.....	2,466	Various.....	263
Total.....	5,781	Total.....	7,582

The imports are derived, in order of value, from Singapore, Hongkong, Great Britain, China, Germany, and India. The exports, in the same order, are destined to Singapore, Hongkong, India, Great Britain, and the Netherlands. The imports from Burma in 1907-8 (tobacco, chillies, pepper, cottons, silk, and clothing) amounted to £175,634; and the exports thereto (teak, kerosene, soap, cloth, etc.) to £218,507. A considerable traffic is carried on by hawkers across the northern frontiers with the British Shan states and Yunnan. In 1909, 830 vessels, of 774,424 tons, entered, and 832, of 776,421 tons, cleared. The merchant marine (1908) included 18 steamers, of 2120, and 50 sail and junks, of 4626 aggregate tons.

Length of all railways (1910) about 650 miles, largely state-owned. The state line under construction to the Burma-Siam frontier has reached Meh Puak; work on it is in abeyance, in consequence of the concentration of energies

upon the extension into the Malay Peninsula which will ultimately connect Bangkok with Singapore. There are few roads, properly so-called. Telegraph lines, 3000 miles; wires, 6200. Post-offices (1909), 102.

**FINANCE.** The monetary unit is the tical, worth about 36 cents, but fluctuating with the price of silver. Measures for the adoption of a gold standard have been enacted, whereby the value of the tical will be fixed at 37.43461 cents. Budget estimates for three years are as follows in ticals:

	1907-8	1908-9	1909-10
Revenue.....	50,700,805	59,200,717	64,250,000a
Expenditure ...	56,261,524	66,594,611	73,673,898b

a Derived as follows: opium, spirits, and gambling farms, 26,849,290 ticals; land and fisheries, 8,831,960; capitation tax, 6,927,168; customs, 6,032,900; railroads, 4,220,000; octrois, 1,713,509; forests, 1,668,600; posts and telegraphs, 1,176,980; mines, 770,300; other, 7,236,282. b Disbursed as follows: war, 14,260,048; interior, 11,169,984; civil list, 9,661,600; railroads, 7,699,210; finance, 6,795,823; administration, 4,255,276; public works, 3,941,369; justice, 2,865,119; land and mines, 2,520,968; irrigation, 1,725,246; worship and instruction, 1,308,603; foreign affairs, 936,286; other, 6,534,366. Public debt (1910), £4,000,000; paper currency, March 31, 1909, 17,988,185 ticals.

**NAVY.** The effective navy included (1910) one cruiser of 2800 tons; 4 gunboats of from 500 to 700 tons each; 3 torpedo boats, 90 tons each; one torpedo-boat destroyer, 380 tons; besides despatch boats, transports, etc., and 65 small craft in the river and coast service. Personnel, 4500 to 5000 officers and men.

**ARMY.** The standing or active army consists of about 6000 men organized on a peace basis into 10 divisions and having 80 pieces of artillery. Each division consists of 2 regiments of infantry, 1 regiment (2 squadrons) of cavalry or mounted chasseurs, 1 regiment of artillery, 1 company of engineers, 1 company of train, and an ambulance company. Military service is required by a law of 1905 and there is general training of male inhabitants for the militia. The armament is modern and consists of Mauser and Mannlicher rifles.

**GOVERNMENT.** Siam is an absolute monarchy, nominally hereditary; in fact, each sovereign appoints his successor. The king is the executive, assisted by a council of ministers and a European adviser. There is a legislative council, composed of the ministers, and other members appointed by the king; many foreigners are employed in the various state departments. King Paramindr Maha Chulalongkorn, who died October 23, 1910, was the most enlightened monarch and the author of many reforms. He was succeeded by his son, Maha Vajiravudh, born January 1, 1881, educated at the Sandhurst Military School and at Oxford, and possessed of many of his late father's Western ideals.

**SIBERIAN SURVEYS.** See **EXPLOATION; ASIA.**

**SICHEL, W. S.** See **LITERATURE, ENGLISH AND AMERICAN, Biography.**

**SIERRA LEONE.** A British colony and protectorate on the west coast of Africa. Area of the colony, 4000 square miles; of the protectorate, 30,000 (both estimates); population (1901), 76,655 and (estimate) 1,000,000 respec-

tively. The inhabitants of the colony are descendants of liberated Africans from all parts of the world; those of the protectorate, Limbas, Kurankos, Timinis, and Mendias. Capital and largest seaport, Freetown, with 37,280 inhabitants. There are mission schools. Palm oil, palm kernels, rice, rubber, kola nuts, ground nuts, coconuts, ginger, gum copal, benni seed, and hides are exported. Imports (1909), £978,807 (Great Britain, £708,409); exports, £981,466 (Great Britain, £256,223); revenue, £361,236; expenditure, £336,746. A railway (227 miles) from Freetown terminates at Baiima near the Liberian frontier. A telegraph line follows the railway. Governor (1910), vacant.

**SINGAPORE.** See STRAITS SETTLEMENTS.

**SIGNALS, RAILWAY.** See RAILWAYS.

**SILICON.** See ATOMIC WEIGHTS.

**SILK.** In their annual review of the raw silk market for 1910, Messrs. Chabrières, Morel & Co., of Lyons, France, stated that the year 1910 has confirmed the growing influence of American consumption on the one hand and of Asiatic production on the other upon the value of silk. The United States consume more than one-third of the world's crop and the Far East produces the two-thirds of same. These authorities further stated that the world's production for 1910 seemed to be smaller by 5 per cent. than that for 1909 and 1908.

The first reason for this diminution was that the French crop resulted shorter by about one-half; then the Italian crop has constantly decreased since 1907, and the crop reports from the Levant were no better. At the same time, a further increase in the production of the Far East, namely of Japan, was reported. So that, during the first months of the season and until the mishaps to the second and third crops of Japan became known, it was generally expected that the yellow silks of Europe would scarcely be up to the requirements, while there would be an excess of Asiatic silks, particularly if the American market did not revive.

Other authorities also estimated the yield of the crop at about 5 per cent. less than the preceding year. Further study showed that the damage to the French crop was much more serious than had been anticipated, the result being reduced by just one-half, amounting to only 340,000 kilos against 674,000 kilos in 1909; in Italy the deficit was limited to about 5 per cent., in Hungary to 12 per cent. The principal crops of Asia Minor, too, had suffered considerably, and in Brusa the difference was estimated at fully one-third, the crop yielding barely 460,000 kilos against 630,000 kilos the year before. The crop in China was estimated first at about 500,000 kilos less, Japan at slightly more than the preceding season. The following table prepared for the *American Silk Journal* gives the estimates of the different countries compared with the two years preceding:

**SILK CROP ESTIMATES:** *American Silk Journal*

	Kilos 1910	Kilos 1909	Kilos 1908
Europe .....	4,300,000	5,380,000	5,560,000
Levant .....	2,900,000	3,100,000	2,700,000
China .....	3,420,000	3,940,000	3,800,000
Canton .....	2,200,000	2,240,000	2,300,000
Japan .....	8,400,000	8,290,000	7,570,000
Bengal .....	280,000	240,000	250,000
	22,000,000	23,190,000	22,180,000

The tussah crop, which occurs later in the

fall of the year, had an abundant yield, and was estimated to be about 2 per cent. larger than in 1909.

These estimates were, however, considerably modified a little later in the year, as regards the two largest silk producing countries in the Far East. In Japan the third crop was much damaged by disastrous floods, which affected about twenty of the largest silk raising districts of the empire. The damage was said to amount to as much as 40 per cent. of the autumn crop in the inundated regions and caused the original estimate of the year's export to be reduced from 145,000 bales to 135,130 bales by the end of August. Later on this was further reduced to about 125,000 bales, while there was a similar reduction in China silk.

The raw silk market during the year 1910 was crossed by a long period of dullness which changed in September to an extraordinary demand for the Japanese product, which lasted until November. This was accompanied by considerable speculation, and a good business in silk piece goods for delivery in the spring of 1911 was expected. The Japanese crop of 1909-10 had proved to be the largest on record, but the crop of 1910-11 as we have seen would have exceeded this amount had it not been for a series of floods in the growing districts which involved serious damage to the cocoons. The first estimate for the Japanese crop of 1910-11 ranged from 140,000 bales to 150,000 bales but at the end of the year many authorities reduced these figures to 125,000 or 135,000 bales. The Italian raw silk crop was reported smaller than for the previous year, while the Canton and Shanghai silk crops were of fair size. At the end of the year 600,000 bales of Japanese silk had been exported to the United States while over 24,000 bales had found their way to Europe. Similar figures for 1909 for the exports between July and December were 50,000 bales to the United States and 27,500 bales to Europe. Canton silks were also in demand especially by the broad silk manufactures and prices were advanced during the closing months of the year.

Late in the summer the manufacturing situation began to improve and the outlook became brighter for a good spring season for silk fabrics of all kinds. The American mills, which for a long time past had been overcautious in their purchases, decided that the time looked ripe for replenishing their supply.

At the close of the year the raw silk market in the United States was in a strong position and many believed that it marked the beginning of a new era of prosperity to the silk trade here and abroad, and of higher values. In 1909 the world's production amounted to 24,000,000 kilograms of raw silk with a consumption of 25,500,000; in 1910 there was estimated a production of less than 22,000,000 kilograms with an increased consumption. Two-thirds of the supply of Japan silks at the end of 1910 had been disposed of and shipped. Stocks at Yokohama at the end of 1910 stood at barely more than one-half of what they were last year. As to Canton silks, the market was entirely bare of stocks.

At the end of the year the condition of finished goods in the American market had undergone a great change for the better and the situation of manufacturers was vastly improved, as a wise curtailment of production during the summer months had prevented any accumulation of new goods, and for desirable fabrics they were able

to name advances which the buyers are willing and ready to pay.

At the beginning of the year 1910 large stocks of raw silk were on hand at nearly all the primary markets. At Yokohama, Shanghai, Canton, Milan and in the hands of the New York City importers there was a large supply, but this was gradually reduced during the first four months of the year and by the first of May prices began to stiffen, especially for Japan's raw silk. Owing to the increased use of flowers, feathers, and straw braids and other materials the ribbon business during the year 1910 was much less extensive than for any previous years and values were thought to be never as low as during that year. At the end of the year importers looked for improvement as an increased use of ribbons by Paris milliners was anticipated. The business in silk piece goods was also unsatisfactory though heavy Messalines or dress satins, printed Foulards, warp printed Persians, Marquisettes and similar fabrics enjoyed good business. Manufactures of silk and cotton mixtures were in many lines taking the place of the cheaper grades of silk.

Silk importations in 1910 exceeded in quantity those of any earlier year, amounting in round terms to 25 million pounds, valued at 70 million dollars, and from this the mills of the United States were expected to turn out more than \$150,000,000 worth of finished products.

The estimate as to the value of the year's manufactures is based upon an actual total of 133 million dollars' output shown by the census of 1905, in which year the imports of raw silk amounted to but about 20 million pounds, against the 25 million pounds imported in 1910.

Silk importations and the activity of the industry utilizing the raw material have shown a steady and rapid growth since the beginning of this industry a half century ago. The total quantity of silk imported in 1860 was approximately a quarter of a million pounds, though the exact figures cannot now be determined since only values were stated at that time. The total value of the imports of that year was approximately  $1\frac{1}{4}$  million dollars. In 1870 the quantity of raw silk imported was, speaking in round terms, a half million pounds, valued at 3 million dollars; in 1880,  $2\frac{1}{2}$  million pounds, valued at 12 million dollars; in 1890, 6 million pounds, valued at  $19\frac{1}{2}$  million dollars; in 1900, 10 million pounds, valued at  $32\frac{1}{2}$  million dollars; and in 1910, about 25 million pounds, valued at 70 million dollars. The foregoing figures of quantity include both "raw silk in skeins reeled from the cocoon or re-reeled" and "silk waste," the imports of waste being less than 4 million pounds in 1910, against about 22 million pounds of silk as reeled from the cocoon.

Meantime the production of silk manufactures in the United States has grown from 12 million dollars' value as recorded by the census of 1870 to 41 million in 1880,  $87\frac{1}{4}$  million in 1890,  $107\frac{1}{4}$  million in 1900, and  $133\frac{1}{4}$  million in 1905, a rate of growth which, taken in conjunction with the known increase in importations of raw silk, seems to fully justify the expectation that the value of the products of the silk manufacturing establishments of the country will, in the census of 1910, show an aggregate of considerably more than 150 million dollars. The number of persons employed in the silk manufacturing industry has, according to census

figures, grown from 1743 in 1850 to 5435 in 1860, 6649 in 1870, 31,337 in 1880, 49,382 in 1890, 65,416 in 1900, and 79,601 in 1905. The wages paid in the industry, speaking in round terms, amounted to 1 million dollars in 1860, 2 million in 1870, 9 million in 1880, 18 million in 1890, 21 million in 1900, and 27 million in 1905; while the capital invested has increased from a half million dollars in 1850 to 3 million in 1860, 6 million in 1870, 19 million in 1880, 51 million in 1890, 81 million in 1900, and 110 million in 1905; the number of establishments having grown from 67 in 1850 to 624 in 1905.

The importations of silk manufactures show much less change than either imports of raw material or domestic production. The value of silk manufactures imported in 1850 was 18 million dollars; in 1860, 33 million; in 1870, 24 million; in 1880, 32 million; in 1890, 39 million; in 1900, 31 million; and in 1910, 33 million, these figures of importations of silk manufactures being in all cases those of the fiscal year, while those of raw silk imported are, in the more recent periods, those of calendar years, with the purpose of presenting the latest available data.

On the export side the figures are small. The largest exportation of silk manufactures of domestic production ever recorded was in the fiscal year 1910—only \$1,097,593, and of silk goods manufactured in foreign countries, \$186,515, thus indicating that practically all of the 200 million dollars' worth of silk goods produced and imported annually is consumed in the United States.

**SILVER.** The production of silver throughout the world in 1910 according to the preliminary estimates made by the Director of the United States Mint was 217,788,714 fine ounces as compared with 211,215,633 fine ounces in 1909. Of the countries producing silver, increases in production were shown in the United States, Canada, Mexico, and South America, while decreases were shown in Africa and several of the countries producing smaller quantities. The production of each country in 1909-10 is shown in the following table:

SILVER PRODUCTION OF THE WORLD

	Final 1909	Preliminary 1910
	<i>Fine ounces</i>	<i>Fine ounces</i>
United States .....	54,721,500	56,438,695
Canada .....	27,878,590	32,878,590
Mexico .....	73,942,432	72,574,220
Africa .....	1,076,577	1,076,600
Australasia .....	16,359,284	16,359,284
Russia .....	132,122	158,546
Austria-Hungary .....	999,184	999,184
Germany .....	5,332,901	5,332,901
Norway .....	213,122	213,122
Sweden .....	29,373	29,373
Italy .....	786,620	786,620
Spain .....	4,767,091	4,767,091
Greece .....	829,025	829,025
Turkey .....	7,971	7,971
France .....	592,042	673,302
Great Britain .....	459,747	618,429
Servia .....	11,226	10,230
So. America .....	16,038,182	16,476,928
Central America .....	2,294,272	2,294,272
Japan .....	4,278,392	4,798,351
China .....		
Indo-China .....		
Korea .....		
Siam .....		
India .....		
British East Indies .....		
Dutch East Indies .....	465,980	465,980
Total .....	211,215,633	217,788,714

The production of silver in the United States as estimated by the Director of the Mint was in 1910 56,438,695 fine ounces as compared with a production of 54,721,500 fine ounces in 1909, an increase of 1,717,195 fine ounces. This increase is due chiefly to increased production of silver from dry and siliceous gold-silver ores, from lead ores, and to a smaller degree from zinc ores, as it was known that the production of copper, the ores of which supply nearly one-third of the silver output of the United States, was somewhat decreased during 1910. The production of both lead and zinc, however, increased in 1910. The average price of copper was slightly lower than in 1909, the average price of lead was increased and that of spelter remained the same. The rather remarkable decrease in both the quantity and price of copper and the increase in both the quantity and price of lead in 1910 were accompanied by an increase in both the quantity of silver produced and the average price of the metal. The silver mining industry was therefore prosperous in 1910. The value of the production is estimated at \$30,194,702 as compared with a value for the production of 1909 of \$28,455,200. The average price of silver in 1909 was 52 cents a fine ounce, while in 1910 the price rose to 53.5 cents a fine ounce.

With the decrease, since the bonanza days of the great Comstock and other silver mines, of production from ores essentially classed as silver ores and the serious decline in market price, the production of silver in the United States has shown a certain independence of its market price and has depended rather on the mining of gold, copper, lead, and mixed ores. With satisfactory prices for the base metals and decreasing costs for mining and smelting them on a large scale, and with the generally increasing gold production of recent years, silver production may therefore be expected to continue to increase in the United States, notwithstanding the growing production from Mexico and Canada and the higher tax imposed on silver by the Indian government. The large output in China and India, the growth of trade throughout the world and a tendency to a greater use of silver in the arts, as for example in photography, have sustained the price of the metal and held out hope for the immediate future. The table given at top of next column indicates the production of silver in the United States by States in 1909-10, according to the preliminary estimates made by the Director of the Mint.

According to estimates made by the United States Bureau of Statistics the imports of silver in 1910 were valued at \$29,599,000 for silver in foreign ore; \$12,703,000 for silver in foreign bullion; \$2,011,000 for silver in United States coin; and \$1,097,000 for silver in foreign coin. The total value of silver imported is therefore estimated at \$45,410,000 for 1910.

The exports during the same year were valued at \$350,000 for domestic ore; \$30,000 for silver in foreign ore; \$51,820,000 for silver in domestic bullion; \$3,100,000 for silver in foreign bullion; \$120,000 for silver in United States coin; and \$550,000 for silver in foreign coin. The total value of exports in 1910 is estimated therefore at \$55,970,000 or \$10,550,000 in excess of the value of the imports. The imports of silver in 1910 were chiefly in ore and bullion and came mainly from Mexico and Canada. The exports were almost wholly in ore and bullion and

went chiefly to the United Kingdom and in smaller amounts to Hongkong and France.

#### PRODUCTION BY STATES

	Final 1909	Preliminary 1910
	<i>Fine Ounces.</i>	<i>Fine Ounces</i>
Alabama .....	200	264
Alaska .....	198,600	126,480
Arizona .....	2,523,600	2,835,641
California .....	2,304,900	3,530,246
Colorado .....	8,846,300	8,747,777
Georgia .....	200	286
Idaho .....	6,755,900	6,686,016
Illinois .....	900	1,727
Michigan .....	217,600	268,642
Missouri .....	15,200	32,900
Montana .....	12,034,500	11,519,059
Nevada .....	10,119,200	9,346,256
New Hampshire .....	3,000	854
New Mexico .....	324,200	683,111
North Carolina .....	400	1,215
Oregon .....	69,600	62,848
Pennsylvania .....	.....	7,867
Philippine Islands .....	3,000	1,523
Porto Rico .....	.....	2
Kansas .....	.....	4,113
South Carolina .....	.....	11
South Dakota .....	196,300	113,460
Tennessee .....	63,300	75,714
Texas .....	408,100	365,854
Utah .....	10,551,100	11,242,301
Virginia .....	6,400	34
Washington .....	75,200	176,816
Wyoming .....	1,800	1,363
Oklahoma .....	.....	66,476
Miscellaneous .....	.....	539,839
<b>Total .....</b>	<b>54,721,500</b>	<b>56,438,695</b>

The following table taken from the *Engineering and Mining Journal* shows the monthly average prices of silver in New York and London in 1909-10:

#### SILVER: MONTHLY AVERAGE PRICES

Month	New York		London	
	1909	1910	1909	1910
January .....	51.750	52.375	23.843	24.154
February .....	51.472	51.534	23.706	23.794
March .....	50.468	51.454	23.427	23.690
April .....	51.428	53.221	3.708	24.483
May .....	52.905	53.870	24.343	24.797
June .....	52.538	53.462	24.166	24.651
July .....	51.043	54.150	23.519	25.034
August .....	51.125	52.912	23.588	24.428
September .....	51.440	53.295	23.743	24.567
October .....	50.923	55.490	23.502	25.586
November .....	50.703	55.635	23.351	25.680
December .....	52.226	54.428	24.030	25.160
<b>Total .....</b>	<b>51.502</b>	<b>53.486</b>	<b>23.706</b>	<b>24.670</b>

New York, cents per fine ounce; London, pence per standard ounce.

**SILVER.** See ATOMIC WEIGHTS.

**SIMMONS, JOSEPH EDWARD.** An American financier, died August 5, 1910. He was born in Troy, N. Y., in 1841 and in 1862 graduated from Williams College. After studying in the Albany Law School he was admitted to the bar in 1863. He practised law for four years in the upper part of New York State and then removed to New York City where he engaged in the banking and brokerage business. The business prospered and he was soon able to purchase a seat in the New York Stock Exchange. During the financial crisis of 1884 he was elected president of the New York Stock Exchange and was re-elected for the following year. He skillfully steered the Stock Exchange through the crisis of these years and then declined to serve another term. In 1888 he was elected president of the Fourth National Bank,

in which position he continued up to the time of his death. He was influential in guiding banks through the crises of 1893 and 1907. In the panic of the latter year he was among those bankers who stood firmly for the climination of Charles W. Morse from the banking field. In 1907 he was elected president of the New York Chamber of Commerce. Mr. Simmons was a conservative Democrat and took an active part in the campaign which led to the election of President Cleveland. The Democratic nomination for mayor was once offered to him, but he declined it in favor of Abram S. Hewitt. In 1907 he was appointed president of the Board of Water Supply, but resigned on account of the pressure of business. He was for ten years president of the Panama Railroad. Mr. Simmons was a director or trustee in many important financial companies. He was prominent as a Mason.

**SIMPSON, B. L.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**SIMPSON, F. A.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**SIMPSON, F. J.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**SINCLAIR, MAY.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**SIPHON LOCKS.** See CONCRETE.

**SKARBINA, FRANZ.** A German painter, died May 18, 1910. He was born in 1849 in Berlin and studied in the Berlin Art Academy. From 1880 to 1893 he taught in the Berlin University School of Art, in which in 1888 he was made professor. In 1892 he was made a member of the Academy for the Advancement of the Art of Engraving and was a partner in the art printing firm of Teubner and Voigtland. Among his best known paintings are "Evening of Life," "Fishmarket in Blankenberg," "A Glimpse out of the Kaiser's Window," "Noon in Ostend," and "Villagers playing Cards." In 1905 a gold medal was awarded to him in Berlin for his engraving "The Imperial Palace in Berlin on a Winter Afternoon." He was a member of the Belgian Academy of Art in Antwerp.

**SKATING.** The international outdoor skating championships were held at Saranac Lake, N. Y., in February. Edmund Lamy made a brilliant showing capturing the 220-yard, the half-mile, the mile, and the three-mile races. The 220-yard hurdles were won by W. G. Finlayson. In the international indoor championships held at Pittsburg Lott Roe made a new American record by skating one and one-half miles in 4 minutes 10 seconds. Both the mile and the five-mile races went to Edmund Lamy, while the two-mile event was won by R. Wheeler. The national outdoor championships were held on Orange Lake, near Newburg, N. Y. Joseph Miller won the quarter-mile race, William Burkholder the half-mile, and William Kuehne the mile. At the national indoor championships held in Cleveland, Edmund Lamy won the quarter-mile and one and a half mile races, while Philip Kearney captured the mile event.

A Russian skater, Strunnikow, carried off the point trophy at the world's championships held in Helsingfors, Finland, in March, although he took first place in the 10,000-metres event only. Mathiesen of Norway won the 500-metre and 3500-metre races, and Johannsen of the same country captured the 5000-metre race. The championships of Europe were contested for at

Davos, Switzerland, and here Mathiesen established the new records of 44½ seconds for the 500-metre, 1 minute 31½ seconds for the 1000-metre, and 2 minutes 20½ seconds for the 1500-metre races.

**SLADEN, D. B. W.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**SLAVIC PHILOLOGY.** See PHILOLOGY.

**SLEEPING SICKNESS.** The study of this disease progressed steadily during 1910, and several new features of importance were brought to light. Both in Uganda and in German East Africa it is realized that control of the malady must be had before these territories will be fit for white settlement, and the respective governments are bending every energy toward stamping it out. Professor Steudel, of the German Colonial Office, made a thorough investigation of the spread of sleeping sickness. He reports that there are several foci in German East Africa: two on Lake Victoria—one in the district of Bukoba, containing 1000 cases, another in the district of Schirati, containing 800 to 1000 cases; and a third focus exists to the north of Lake Tanganyika, containing several thousand cases. This is the largest district, and to render it free from the disease will necessitate a great deal of work. Another very old focus is located in Togo. Here the malady runs a milder course, shows less tendency to spread, and is more amenable to arsenical treatment. A remarkable fact, according to Locke, is that the arsenical preparations appear to vary widely in their effect in different localities. While patients in Togo are easily influenced by arsenicals, those on the Congo and at Kamerun (Cameroon) are affected only with difficulty. A marked difference is also noted with regard to the susceptibility to arsenic poisoning by natives in different districts, all of which renders the problem of treatment by means of these preparations highly complex. Another fact of importance was brought out by Klein in German East Africa, namely, that the tsetse-fly (*Glossina palpalis*) can remain infectious for several months, or even longer. Sir David Bruce found that the period of infectivity might last seventy-five days instead of forty-eight hours, as was formerly believed. This discovery has somewhat vitiated the theory that populations removed from fly districts could be returned to their homes after a brief period, or that these areas can be repopulated by other healthy people. Still another circumstance which complicates the situation is that certain individuals, themselves showing no signs of sleeping sickness, can harbor trypanosomes in their blood and act as carriers.

Sanitary measures on a large scale are being carried out on the lines laid down by Robert Koch. All individuals affected are segregated in colonies, the flies and their breeding places are destroyed by cutting down brush and reeds, and in addition the destruction of crocodiles, which also harbor the trypanosomes in their blood, is being carried out. Natives are removed from the fly districts and compelled to reside in healthy places free from flies. In the ten German segregation stations in East Africa, 6167 patients have been continuously under the supervision of nine physicians and sixteen sanitary assistants, both ambulant and hospital treatment being instituted.

Evidence was brought forward that sleeping sickness is spread by another fly besides the

*Glossina palpalis* (tsetse-fly). In Northwest Rhodesia, a number of cases of sleeping sickness occurred among both whites and natives. In this district no *Glossina palpalis* has been found, and the nearest point at which the fly lives is 400 miles distant. The newly suspected insect is another species of tsetse-fly known as *Glossina morsitans*, which is found in regions much farther south than the *Glossina palpalis*, where the latter is unknown. If these observations prove correct, a considerable modification in the sanitary measures already undertaken will have to be made.

Those interested may consult the Bulletins of the Sleeping Sickness Bureau, London. The librarian of the Bureau, G. A. Thimm, has compiled a *Bibliography of Trypanosomiasis*, an index of published works on the subject. More than 2000 titles are included.

**SLOANE, W. M.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**SLOCUM, C. E.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**SMALL HOLDINGS.** See AGRICULTURE.

**SMALL HOLDINGS ACT.** See GREAT BRITAIN, *History*.

**SMALLPOX AND VACCINATION.** According to the public health reports of the Marine Hospital Service, smallpox was present during the winter and spring of 1909-10 in almost every State of the Union. The disease has been unusually prevalent in the United States during the last ten years. From 1901 to 1903 it was epidemic and 4658 deaths were recorded. It is estimated that at least one-tenth of the population, or eight to nine millions of people, were unvaccinated. These constitute fuel for the propagation of the disease. Variola varies in virulence in different places and at different times, from less than 1 per cent. mortality to over 30 per cent. During epidemics, it may assume a most virulent form at any time among the unvaccinated population. The United States has succeeded in stamping out smallpox in the Philippine Islands. Up to 1909, 3,515,000 vaccinations had been performed, without a single death or serious accident occurring. Whereas in the provinces of Cavite, Batangas, Cebu, Bataan, La Union, Rizal, and La Laguna, smallpox had caused more than 6000 deaths annually, since the completion of thorough vaccination not a single death has occurred. Schamberg cites other figures to illustrate the protective value of vaccination. While the deaths from smallpox among physicians (a class particularly well vaccinated) are but thirteen per million in England, the deaths among the general population are seventy-three per million. In scarlet fever, on the other hand, against which physicians have no special protection, the figures are reversed. Fifty-nine medical men per million die of scarlet fever, as against sixteen per million of the general population. It is a common observation that nurses and physicians, who are vaccinated and who are in constant attendance upon smallpox patients, rarely contract the disease, and still more rarely lose their lives.

Sandwith points out the cost of anti-vaccinationist agitation in England and contrasts the smallpox situation in that country with that of Germany. In Germany, no such views in regard to the liberty of the subject, as prevail in Great Britain, exist to interfere with the thorough compulsory vaccination of the people.

Consequently, the only provision necessary in Berlin for smallpox is a dozen beds in a general fever hospital. Near London, on the other hand, a number of hospitals, containing 2040 beds, have to be kept constantly ready for an epidemic. The capital outlay for this purpose amounts to \$2,500,000, and the annual expenditure to \$65,000. See VITAL STATISTICS.

**SMITH COLLEGE.** An institution for the higher education of women at Northampton, Mass., founded in 1875. In 1909-10 the number of students was 1618 and there were 124 members in the faculty. There were no notable gifts received during the year or noteworthy changes in the faculty. The productive funds of the college amounted in 1909-10 to \$1,280,000 and the annual income is about \$85,000. There are about 30,000 volumes in the college library. The President is Marion Le Roy Burton.

**SMITH, EDGAR MEAD.** An American publicist, died April 9, 1910. He was born at Islip, L. I., in 1826. At the age of 18 he began the study of law, but abandoned it for a mercantile career in New York City. About twenty years previous to his death he retired from business. He took an active part in the abolition movement and was for years a prominent figure in business and political circles in New York City.

**SMITH, GOLDWIN.** An Anglo-American publicist, died June 7, 1910. He was born at Reading, Berkshire, England, in 1823. His father was a physician and from him the son inherited considerable property. He was educated at Eton and at Magdalen College, Oxford, graduating from the latter institution in 1845. During his college career he gained several prizes and two scholarships. In 1847 he became a fellow of University College, Oxford, and in the same year was called to the bar at Lincoln's Inn, but never practised law. From 1858 to 1866 he was regius professor of modern history at Oxford. He visited the United States in 1864 and during the Civil War was an ardent supporter of the North. Previous to his visit he had written pamphlets entitled *Does the Bible Sanction Slavery?* and *On the Morality of the Emancipation Proclamation*. While in the United States he made a lecturing tour and on his return to England published *The Civil War in America*. In 1868 he resigned his post at Oxford for family reasons and removed to the United States. Cornell University was at that time in the process of being organized by Ezra Cornell and Andrew D. White and they secured the services of Goldwin Smith as lecturer on English and constitutional history. He remained in this position until 1871, when he removed to Toronto, Canada, which was his residence during the remainder of his life. He retained a non-resident professorship at Cornell. In Toronto he continued his work as author, critic, and historian, expressing clearly the convictions he had arrived at through serious thought and study. In politics he styled himself a moderate liberal and he was opposed to party expediency as a means by which political corruption obtained its ends. He was a firm believer in the expediency of a union between Canada and the United States and he worked earnestly to bring this about. This brought him some degree of unpopularity in Canada. In addition to his other writing, for more than a generation he contributed a weekly article to the *Farmer's Son* of Toronto under the pen name

"Bystander." He began newspaper work as a member of the staff of the London *Times* and he was for many years honorary president of the Canadian Press Association. Goldwin Smith in his later life was called the last of the great agnostics, and he contributed many articles on religious subjects to the New York *Sun*. He was active in educational associations and was vice-president of the Canadian Land Association. As a historian he threw much light on the relations between England and Ireland, claiming that the contest was of historical origin and primarily a struggle on the part of the Irish race to reacquire the ownership of their soil. As professor of history at Oxford he developed his philosophy of history, combating the view that history is governed by necessary law; claiming on the contrary that all progress comes through the efforts of individuals, thus finding a moral rather than a physical basis for historical evolution. Goldwin Smith was the contemporary of the great English scientists and historians of the middle and latter part of the 19th century, and he was considered by them an equal in knowledge and attainments. His literary style was marked by a remarkable clearness and force of expression and in the correct use of the English language he was surpassed by no writer of his generation. Among his published works are *Lectures on Modern History delivered at Oxford 1859-61* (1866); *Irish History and Irish Character* (1861); *The Empire* (1863); *Speeches and Letters* from January 1860 to January 1865, dealing with the American Civil War (1865); *A Short History of England down to the Reformation* (1869); *The Political Destiny of Canada* (1879); *Lectures and Essays* (1882); *Dismemberment No Remedy*, a book on Home Rule (1886); *History of the United States* (1893); *Essays on Questions of the Day* (1894); *Irish History and the Irish Question* (1895); *My Memory of Gladstone* (1905); *In Quest of Light* (1906). He also wrote *Guesses at the Riddle of Existence*, *Shakespeare, the Man, Commonwealth or Empire*, *In the Court of History*, *The Founder of Christendom*, *Letters of Religious Inquiry*, and *Labor and Capital*. He founded and edited in Toronto a Canadian monthly, the *Nation*, and the *Toronto Week*. Up to the time of his death he remained an active journalist.

**SMITHSONIAN INSTITUTION.** An institution established in 1846 in accordance with the provisions of the will of James Smithson, an Englishman, who bequeathed his fortune to the United States for the increase and diffusion of knowledge. The parent institution has administrative charge of several branches which were developed by its earlier activities and are now supported by Congressional appropriation. These are the United States National Museum (q. v.), the International Exchange Service, the Bureau of American Ethnology, the National Zoölogical Park, the Astrophysical Observatory, and the Regional Bureau for the International Catalogue of Scientific Literature. The most important event in the history of the institution during 1910, at least from a popular standpoint, was the return of the Smithsonian African Expedition, in charge of Theodore Roosevelt. This expedition was entirely financed from private sources through contributions by friends of the Smithsonian Institution. The collection of large and small mammals from East Africa obtained by this expedition is probably

more valuable than is to be found in any other museum in the world. The series of birds, reptiles and plants are also of great importance. The results of the expedition in acquisitions of the institution were as follows: Mammals, 4897; birds, about 4000; reptiles and batrachians, about 2000; fishes, about 500; total, 11,397. A few marine shells were collected near Mombasa and land and fresh water shells throughout the regions visited. Several thousand plants were also collected. The anthropological material was gathered by Dr. Mearns and others.

The institution proposes to carry on an exhaustive biological survey of the Panama Canal Zone during 1910-11. By the construction of the Gatun dam a vast fresh-water lake will be created which will drive away or drown a majority of the animals and plants now inhabiting the locality and quite possibly exterminate some species before they become known to science.

Through the generosity of Mrs. E. H. Harriman a trust fund, yielding an income of \$12,000 a year, has been placed under the direction of the institution for the specific purpose of carrying on scientific studies, particularly of American mammals and other animals, the donor specifying Dr. C. Hart Merriam as the investigator to carry on the work during his lifetime.

In March, 1910, Dr. Ales Hrdlicka, Curator of the Division of Physical Anthropology of the United States Museum, proceeded to South America and the Panama Canal Zone for the purpose of making anthropological researches and particularly to undertake investigation into the question of man's antiquity in Argentina. The researches occupied nearly two months and the expedition secured numerous geological, paleontological, and anthropological specimens, some of which will throw much light on the antiquity of the finds to which they relate.

The publications of the institution include the *Smithsonian Contributions to Knowledge*, the *Smithsonian Miscellaneous Collections*, and the *Smithsonian Annual Reports*. In addition the respective departments issue many publications. The scientific literature produced through the institution aggregates about 350 volumes made up of several thousand memoirs and papers. The annual income of the parent institution is about \$60,000 and the Congressional appropriations disbursed under its direction for the government branches administered by it aggregate about \$1,000,000 each year. The secretary is Charles D. Walcott, and the assistant secretary in charge of the United States National Museum is Richard Rathbun.

**SMOKE CONSUMER.** See **CHEMIST.**

**SMOKE PREVENTION.** The movement to abate the smoke nuisance in cities was continued in various parts of the country throughout the year. State legislation applying to Boston, Cambridge, Somerville, Chelsea, Everett, and Brookline, Mass., and a part of Boston Harbor, went into effect on July 1, 1910. The act, which was drawn by the Committee on Fuel Supply of the Boston Chamber of Commerce, remedied defects in an earlier law, and laid down more specific standards, including the Ringelman smoke density charts, as published and used by the U. S. Geological Survey. A board was created to supervise the enforcement

of the law, which work will be in the direct charge of a smoke inspector.

**SNATH, J. C.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**SNELL, F. J.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**SNOWDEN, J. H.** See LITERATURE, ENGLISH AND AMERICAN, *Philosophy and Religion*.

**SNOW SHEDS, CONCRETE.** See CONCRETE.

**SOCIAL PHILOSOPHY.** See PHILOSOPHY.

**SOCIAL SERVICE, AMERICAN INSTITUTE OF.** An organization founded in 1898, to serve as a clearing house for facts, experiences and ideas on social and industrial betterment. Its plans are to create a museum of municipal facts and photographs, and a museum of the laws of all countries touching social problems. Those interested may consult its large specialized library and its department of expert information, and may borrow books and documents so far as the library contains duplicates. The institute has several thousand negatives of social subjects from which lantern slides may be made to order, conducts a lectureship on social subjects, arranges for special investigations, prepares bibliographies and had in 1910 over 500 classes in the United States and Canada. All its services are free except special investigations. Its office is in New York City.

**SOCIALISM.** THE INTERNATIONAL CONGRESS. The Eighth International Socialist Congress, with some 900 delegates present, was opened at Copenhagen on August 29, by a speech from M. Gustave Bang, a member of the Danish Parliament, who declared that the object of workers was to put an end to the class war by uniting with the workers of foreign countries, whereas capitalized enterprise and exploitation always tended to cause war between the nations. A subsequent speaker declared that the International Socialist party comprised 33 nationalities, and that the total number of Socialist voters in the world was now 8,000,000. In general, the objects for which the Congress was working were: First, coöperation as to Socialistic policy; second, the promotion of trade unionism and international solidarity; third, the prevention of war by arbitration and disarmament; fourth, labor legislation for the relief of unemployment; and fifth, the abolition of the death penalty. A resolution was drafted to the effect that it was the duty of all Socialists to unite in resisting militarism. Reports were made by the commissioners appointed to investigate the questions of unemployment, arbitration and disarmament, international solidarity, and the coöperative movement in socialism, each of which made specific recommendations. As to unemployment, a resolution was presented demanding that full statistics be obtained, that public works should pay union rates of wages, that the trade union funds should be subsidized for the relief of the unemployed and, in general, favoring legislation for limiting hours of labor, and subvention by the state of benefit funds. As to arbitration and disarmament, the question was raised as to the possibility of a general strike against a war, but it was finally decided to leave this question to the International Bureau which should report upon it to the next Congress. The resolution on international solidarity demanded closer fusion of labor organizations internationally. The report on the coöperative movement and socialism declared that the working class should

be on its guard against thinking that coöperation in itself was enough. Coöperation had nothing to do with socialism. If a coöperative society pays the trade union rate of wages and contributes to the trade unions and the Socialistic party it was proper for the Socialists to support it. At the International Socialist Women's Congress, held at Copenhagen at the same time, with 200 delegates representing twenty countries, it was resolved that Socialists should stand for complete woman's suffrage and against any property qualification.

**GERMANY: NUMERICAL STRENGTH.** Not only is the German Social Democracy the most prosperous and effective body of Socialists, but it is also the most numerous. It has advanced steadily in power in recent years. It counted in 1910, including women, 720,038, as against 633,309 in 1909. The women numbered 82,642 as compared with 20,383 the year before. The membership has latterly increased at the rate of about 14 per cent. a year. There are some 3000 officers engaged in its administrative work. Associated with it are choral societies and societies formed for purposes of athletics or sports, which together have a membership of 220,000, and also the trade unions which have a membership of 1,800,000. At the last election it received three and one-quarter million votes out of sixty-four million inhabitants. In the various Landtags of Germany there are 140 Socialist deputies; in the Reichstag, there are 52. The party controls 76 daily newspapers and one quarterly. The leading Berlin organ, *Vorwärts*, had a subscription of 139,000 in 1910. Despite this numerical strength, they have not a proportionate influence in politics in the Reichstag and especially in Prussia. In the latter kingdom the condition of the franchise has excluded them from any political development, and their agitation for universal suffrage and against the three-class system has had but little effect. An attempt was made to precipitate a great political strike in July, 1910, but nothing came of it. (See *GERMANY, History*.) In the elections of 1907 they lost half of their representatives in the Reichstag. Since then, however, they have gained repeatedly in the partial elections and their influence has been so much strengthened by the prevailing discontent with the imperial fiscal policy that many have predicted that they would return to the 1911 Reichstag 120 strong.

**DIVISION IN THE GERMAN PARTY.** The strictly orthodox Socialists of Prussia and Saxony were bitterly opposed to the compromises which certain Socialist groups in the South, especially in Baden, made with other political parties in order to gain immediate ends. In the South the Socialists, finding themselves under governments with a more liberal tendency, believed such political alliances to be good policy. At the Congress of Nuremberg in 1908 they were rebuked by the orthodox element but declared that they were responsible only to their local organizations for their parliamentary tactics. In Baden the Socialist deputies afterwards voted the budget in the Landtag and even sent a committee to congratulate the Grand Duke on his golden wedding. This occasioned loud protests from the Prussian orthodox branch of the party which compared these opportunists to strikebreakers. Nevertheless, the Socialist congress in Baden in August upheld the action of the deputies and expressed confidence in them.

In Hesse the Socialists favored the same course. The orthodox party believed that the policy of compromise won for the Socialists merely temporary allies who could not be relied upon at a crisis. They deprecated the sacrifice of essential Socialist principles for the mere purpose of gaining immediate ends and of making an apparently rapid progress and they urged the tightening of the lines and the exclusion of the half-hearted or insincere by a plain statement of the pure principles of collectivism.

**THE MAGDEBURG CONGRESS.** This attitude of the Baden deputies toward government finance bills was the subject of important debate in the Congress of the German Socialist party at Magdeburg in the latter part of September. A rigid resolution was offered by the more orthodox element to the effect that if the Baden Revisionists should again violate the rules laid down by the Committee of the Congress they should be excluded from the party. The Revisionists declared that they would not take part in this discussion, but the Congress decided to go on with it, and 70 Revisionist delegates left the hall, whereupon the resolution was carried by 228 to 64. In the session of September 22, a member was loudly cheered on making a declaration against the régime of personal absolutism and saying that Socialists agreed in favor of a Republic in place of it. For the Socialist debate in the Reichstag in November apropos of the Kaiser's Königsberg speech, see GERMANY, *History*.

**FRANCE: GAINS IN THE ELECTIONS.** In the elections of April 24 and May 8, 1,125,877 votes were cast for the Unified Socialists, an increase of 200,000 over the preceding elections, and 76 deputies were elected as compared with 55 in the last legislature. It was admitted, however, that they owed 17 of these seats to Conservative voters, who had been disgusted by the Radical programme. Their gains were chiefly in the country districts. In the cities they suffered some reverses, losing votes in Paris and failing to elect their candidates in several of the smaller cities. The success of the campaign in the country was due largely to the energetic efforts of the Socialists to win the peasantry over to their agrarian programme. While they preached collectivism in the cities they appeared before the peasants as champions of peasant proprietorship, arguing that a Socialist programme would certainly benefit the peasantry. Despite the extraordinary gains of the Socialists, some of their prominent writers warned the party against taking too hopeful a view of the situation. They pointed to the large proportion of these gains which were due to the disaffection of other parties with the government. These accessions were most fortunate for the Socialists, but it was a question how long they could retain their new allies. Although the Socialist press gave expression to high hopes of the speedy triumph of collectivism, there were some who saw in them rather a temporary victory, and pointed to the difficulty of concerted action owing to the antagonism between the Socialist reformers of the Jaurès type and the radical Marxists or Guesdists. Moreover, the temper of the people at large was not favorable to organized socialism, although inclined to radicalism. The Socialist deputy, M. Albert Thomas, announced in the Chamber the programme of the Unified Socialists. This comprised the following features: Collectivism; reform; secularization; progressive

taxation of income and successions; reduction of the customs tariff; monopoly of alcohol; inspection of house industries; control of the financial group that exploits savings; laws for the insurance of outdoor workmen; prevention of colonial undertakings; the right of civil servants to form trade unions; penal laws against employers who do not recognize trade unions; woman suffrage, etc. For the attitude of the Socialists toward the government during the great railway strike, see FRANCE, *History*.

**THE BRITISH EMPIRE.** In Great Britain the Social Democratic party, with a membership of about 17,000, supported eleven candidates in the general election of 1910, and only one was successful. On the other hand, the Labor party, which since the Hull Conference of 1908 has been pledged to socialism, increased its vote over that in 1906 by 57 per cent., and returned to Parliament 42 out of their 56 candidates. (See GREAT BRITAIN, *History*.)

In Australia the Socialist Labor party was victorious in the election of April, 1910. (See AUSTRALIA, *History*.)

**BELGIUM.** The Belgian Socialists, on the whole, favored a policy of participation in the government. They had hoped for greater successes at the last election as the power of the dominant Catholic party seemed clearly on the wane, but the Ministry lost only two seats and retained a majority of six. The Socialists received 500,000 votes and a Socialist congress assembled at Brussels on June 26 and 27 to consider the best means of overthrowing the Ministry. A policy of parliamentary obstruction was favored by the more aggressive element of the party but the congress finally decided upon a vigorous campaign for universal suffrage in place of plural voting, hoping to secure Liberal support to that end.

**DENMARK.** In 1909 the Social Democrats increased their vote in the general elections by 18,000, receiving one-third of the total votes cast, but in 1910 the party did not participate in the recent progress of the movement as a whole. The results of the elections were unfavorable to it. The Radical Ministry, which they supported, fell from power and they did not add to the number of their representatives in parliament, which continued to be 24.

**ITALY.** In the last elections the Italian Socialists received 339,000 votes. The liberal sympathies of the Ministry and the promise by the premier, M. Luzzatti, of social reforms, won over the Socialist deputies to the side of the government. The Socialists of the south contended especially for suffrage reform and against political corruption. The Socialists in northern Italy were better organized and formed a more compact working group. There were some signs of dissension between the northern and southern Socialists, the latter accusing the Socialists of the north of neglecting their duty of spreading the doctrines among the people at large. The Socialists gained four seats in the Provincial Council elections, and in the Milan municipal elections all of the 25 Socialist candidates nominated were elected. In the Congress of Milan, October 21-25, the majority supported a motion of the reform element in favor of a truly national Socialist movement, and the preparation for revolution by the gradual conquest of reforms on behalf of the proletariat, including universal suffrage for both sexes, the gradual reduction of military expenses, a more active

participation in political and educational affairs and in the concerns of organized labor, and the enactment of laws of insurance against invalidism and old age.

**SPAIN.** In Spain the Socialists for the first time were represented by a deputy in the Cortes, Pablo Iglesias having been elected from Madrid in the general election of 1910 by a vote of 40,000. His political speeches, however, have marked him as an anarchist rather than a socialist. They have acted marked by frequent appeals to violence. The Spanish working classes are divided into Socialists and Anarchists. The Socialists have not repudiated the policy of violence, but have actually at times shown a tendency to join with the Anarchists.

**RUSSIA.** The introduction of social reforms after the Russo-Japanese War, the calling of the Duma and the revolutionary movements of 1905 and 1907 have acted unfavorably upon the Socialist party in Russia. Only a small and discouraged remnant of that party was represented in the Congress of Copenhagen. The party is divided upon the question of political tactics, some demanding that the Socialist deputies in the Duma shall withdraw, and others that they shall remain isolated and use the Duma merely as a vantage ground for open propagandism; others still favored a policy of alliance with other political groups in parliament. Rivalries between the leaders who represent these divergent views have prevented the compact organization of the party.

In Finland the Socialists made great gains in the elections following the dissolution of the Diet, securing 86 seats out of 200.

**UNITED STATES.** There were substantial Socialist gains in the United States during the year 1910. In the Congressional and State elections the Socialist vote was 804,756. For the first time they elected a representative to Congress, Mr. Victor L. Berger being chosen from the Fifth Congressional District of Wisconsin. (See Wisconsin, *Conventions and Elections*.) In April Milwaukee elected as mayor Emil Seidel, a Socialist. A national Socialist convention was held in Chicago in May. The paying members of the organization were reported by the secretary to number 50,000.

#### SOCIAL WORK OF THE CHURCHES.

Within the past ten years there has been a great increase in the distinctly social activities of the various Christian bodies. In the year 1889, a group of English (Established) Churchmen formed the Christian Social Union. Two years later a similar society adopting the same name was formed in the United States. The two societies are alike, both in the motives that led to their formation, and in the methods and principles of their work.

The Christian Social Union undertakes first to bring the moral principles of the Christian faith to bear on social and substantial problems, and secondly, to study the "practical problems" of society in the light of this principle with the hope of pointing out where and how it may and should determine opinion and action.

In 1901, the General Convention of the Episcopal Church in America created a Joint Commission on the Relation of Capital and Labor which was designed:

First, to study carefully the aims and purposes of the labor organizations of our country; secondly, in particular, to investigate the causes of industrial disturbances, as these may arise;

thirdly, to hold themselves in readiness to act as arbitrators, should their services be desired, between the men and their employers, with a view to bring about mutual conciliation and harmony in the spirit of Christianity. Reports were made to the conventions of 1904 and 1907, which, while "designedly general in terms," were in the main suggestive but contained a strong protest against the abuse of child labor.

The great Ecumenical Council held in 1908 at Lambeth passed the following resolutions:

"The Conference recognizes the ideals of brotherhood which underlie the democratic movement of this century, and, remembering our Master's example in proclaiming the inestimable value of every human being in the sight of God, calls upon the Church to show sympathy with the movement in so far as it strives to procure for all just treatment and a real opportunity of living a true human life, and by its sympathy to commend to the movement the spirit of our Lord Jesus Christ, in Whom all the hopes of human society are bound up.

The social mission and social principles of religion should be given a more prominent place in the study and teaching of the Church, both for the clergy and the laity.

The ministry of the laity requires to be more widely recognized, side by side with the ministry of the clergy, in the work, the administration, and the discipline of the Church.

A committee or organization for social service should be part of the equipment of every Diocese, and, as far as practicable, of every parish.

The Church should teach that the Christian who is an owner of property should recognize the governing principle that like all our gifts, our powers, and our time, property is a trust held for the benefit of the community, and its right use should be insisted upon as a religious duty.

The Conference urges upon members of the Church practical recognition of the moral responsibility involved in their investments. This moral responsibility extends to—

(a) The character and general social effect of any business or enterprise, in which their money is invested;

(b) The treatment of the persons employed in that business or enterprise;

(c) The due observance of the requirements of the laws relating thereto;

(d) The payment of a just wage to those who are employed therein."

These in turn were accompanied by a careful report on social and economic questions. It is generally understood that no small part of the advanced position taken by the Lambeth Conference was due to the influence and industry of the Christian Social Union. The Anglican Church in the antipodes is also at work along social lines. There is a Christian Social Union there with branches in Adelaide, Melbourne and Sydney. The Diocese of Melbourne has a Committee on Social Questions which has not hesitated to make concrete suggestions. The Anglican Church in Canada is considering various aspects of the question and the programme of recent Canadian church congresses has given social questions a large measure of attention.

In the American Episcopal Church the dioceses are one by one giving attention to the

subject, mainly through the appointment of committees or commissions on social welfare. The first was that organized by canon, in the diocese of Long Island in 1905, consisting of the bishop, ten clergymen and ten laymen. This Social Service Committee has for its purpose the "carrying into effect any measure or measures recommended by the Diocesan Convention for the betterment of social conditions in the diocese." Subdivided into a number of sections it has accomplished much good in various ways. The relations between labor and the Church have become much more friendly. There have been a number of substantial victories in preventing the encroaching of business considerations upon Sunday, and the committee was no small factor in calling the attention of Governor Hughes to the need for the abolition of the race track gambling.

At the Cincinnati General Convention of the Episcopal Church in 1910 the following resolutions were adopted:

Resolved, That a Joint Commission on Social Service be appointed, consisting of five bishops, five presbyters and five laymen. It shall be the duty of this Commission to study and report upon social and industrial conditions, to coördinate the activities of the various organizations existing in the Church in the interest of social service, to cooperate with similar bodies in other communions, to encourage sympathetic relations between labor and capital, and to deal according to their discretion with these and kindred matters.

The Church Association in the interest of Labor, or as it is more popularly known, "Cail," has for years devoted its energies to bring labor and capital into closer relations; to lead them to understand one another and to meet on a common basis of mutual regard and respect.

The Roman Catholic Church has not been so aggressive in its social work although it shows encouraging signs of awakening. In October, 1910, the first national conference of Roman Catholic Charities was held in Washington, the keynote of which was struck in the sermon of Archbishop Blenk who in the conference sermon said: "If God wants us to be charitable, He wants us to be enlightened in our charity; that is charity guided and directed by the light of the intellect, for He is not only the God of love, He is also the God of light."

According to Monsignor White, Supervisor of Roman Catholic Charities in Brooklyn, "study and action were recommended and the delegates were exhorted to take an interest in the Consumers' League, the Child Labor Committee, the anti-tuberculosis crusade and other movements for the betterment of the poor."

Congregationalism it is claimed in a recent report on "The Church for Brotherhood in Industry" identifies its social ideals with religious life and action.

Through the Committee on Industry and the Secretary of the Congregational Brotherhood the Congregationalists are planning to enter into close and active coöperation with the Federal Council of the Churches of Christ in America, through its Committee on the Church and Modern Industry. All Congregational national societies, State conferences and local churches are urged to coöperate with this body representing all Protestant denominations, in all matters requiring interdenominational

expression or action, in order that the churches shall present a united front to organized employes and employers and to State legislatures in any situation requiring the declaration of Christian principles or coöperative effort.

The Presbyterians have no commission on Social Service, but they have established a "Department of Church and Labor," with the Rev. Charles Stelzle as superintendent, and Warren H. Wilson, Ph. D., as assistant superintendent, and G. B. St. John as field investigator. The headquarters are at 156 Fifth Avenue, New York. Mr. Stelzle has been an effective factor in arousing his own communion to its social obligations and in bringing organized labor into closer relationship with the Church. He has been remarkably successful in arranging large mass meetings and in securing intelligent publicity. He has removed much of the prejudice that existed among working men for clergymen and has overcome a measurable amount of the indifference of the clergy and laity toward labor movements.

The Methodists have a strong Federation for Social Service.

The Northern Baptists have a Social Service Commission of:

Rev. Harold Pattison, St. Paul, Minn., c/o First Baptist Church; Rev. L. W. Riley, McMinnville, Oregon; Rev. Charles J. Galpin, Madison, Wis.; George T. Webb, 1701 Chestnut Street, Philadelphia, Pa.; E. A. Hanley, Providence, R. I.; H. P. Whidden, Dayton, Ohio; George W. Coleman, Boston, Mass.; Prof. C. R. Henderson, University of Chicago, Chicago, Ill.; Rev. Edward Holyoke, Providence, R. I.; Rev. E. W. Hunt, Granville, Ohio; Rev. S. Z. Batten, Des Moines, Iowa; Rev. Walter Rauschenbusch, Rochester, N. Y.; Rev. W. Q. Roselle, 2110 Green Street, Philadelphia, Pa.; Rev. A. W. Wishart, Grand Rapids, Mich.; Prof. Shailer Mathews, University of Chicago, Chicago, Ill.

At the annual meeting of the American Unitarian Association, held on May 25, 1910, the following resolution was adopted:

Whereas, it is to-day universally conceded that a real and intimate relation exists between the church, or churches, and all work of philanthropy and social reform, and

Whereas, in the growing complexity of modern life, it is increasingly difficult to determine how the church, or churches, shall manifest a recognition of this relationship and act thereupon, therefore,

Be it Resolved, That the president of this Association, through its Social Service Department be, and hereby is, requested to appoint, as soon as convenient, a Commission of fifteen members, comprising both ministers and laymen, and including representatives of all sharply-defined points of view, to be known as the Unitarian Commission on the Church and the Social Question, which Commission shall be charged with the task of defining specifically the contribution which the churches, both individually and in their collective capacity, can and should make to the work of social progress and reform.

**SOCIETY OF CHEMICAL INDUSTRY OF GREAT BRITAIN.** See CHEMISTRY.

**SOCIOLOGY.** SOCIOLOGICAL SOCIETY. At the annual meeting of the American Sociological Society at St. Louis, in December, Professor Edward A. Ross of the University of Wisconsin

gave some result of his impressions of China gathered in the course of an extensive tour in the inner provinces. He pointed out the numerous evidences of the severity of the struggle for existence, and drew conclusions regarding the family, the conservation of natural resources, the language, changes going on in the political and social constitutions and the physical and mental stamina of the people. Another study entitled "A sociological appraisal of western influence in the Orient," by Rev. Edward W. Capen, dwelt on the social influence of missionaries and the development of education, industry, medicine, and political and social reform among Oriental people.

Studies were presented bearing on the rural life problem. Professor John M. Gillett pointed out the uselessness of agitations for return to the farm so long as the great forces leading to the city-ward movement are not fully counteracted. He and other speakers pointed out the supreme need of reorganizing rural school and social life, of developing leadership in rural communities, and creating a new spirit of concrete social service in the life of the country church.

The address of the president of the Society, Professor Franklin H. Giddings of Columbia University on "The relation of social theory to public policy," after epitomizing the contributions of Comte, Spencer, and Bagehot, treated the problem of international peace from the sociological view point. The subject of social surveys was discussed and the progress of surveys in Buffalo and Kansas City reported. Professor George E. Howard of the University of Nebraska, speaking on "Social control of domestic relations," emphasized the importance of a rational view and of preaching actual rather than conventional morals; he also discussed compulsory social hygiene, juvenile courts, State endowment of mothers, positive eugenics, venereal diseases, uniform marriage laws, and a college for the study of the domestic relations. Professor Frank W. Blackmar of the University of Kansas in discussing the progress of social reform pointed out that most reformers advance destructive criticism without being able to propose constructive policies. He held that the chief problem of modern reform is to eliminate evils and bring about better conditions under the actual limitations of complex social life; most reform leaders are not sufficiently endowed to achieve this. Professor Weatherly of the University of Indiana speaking on "The racial elements in social assimilation," declared that thus far America had met with little difficulty in assimilating the great variety and numbers of foreign peoples who come here because of their willingness to be absorbed. He dwelt on the importance of language as a factor for and against assimilation and drew the conclusion that, on account of ethnic and cultural differences, general amalgamation is unlikely in this country. Professor Hayes of the University of Illinois declared that sociology was as yet for the most part in the metaphysical stage of its development and that every effort should be made to advance it to the scientific stage. He noted the great reliance upon so-called social forces, particularly in the writings of Lester F. Ward, and pointed out the necessity of replacing "supposed forces and substances with scientific explanations."

The membership of the Society has reached

three hundred, chiefly members of departments in colleges, university students and social workers. Professor Giddings was re-elected president and Alvan A. Tenney was re-elected secretary-treasurer. The next meeting of the Society will be held in Washington, D. C., December, 1911, concurrently with that of the American Economic Association.

**SOCIETY OF MEDICAL SOCIOLOGY.** A number of leading physicians of New York City formed the American Society of Medical Sociology. Dr. Abraham Jacobi accepted the honorary presidency of the Society, of which the founder and president was Dr. Wm. J. Robinson, editor of several medical journals. Dr. James P. Warbasse, a vice-president, is known as the author of "Medical Sociology." Another vice-president, Dr. Wm. L. Holt, was then in Europe investigating the associations advancing the work of interest to the Society. Among the questions to be studied are occupational diseases; relation of the strain of our rapid modern life to insanity and nervous diseases; food adulterations and their influence on health; economic aspects of tuberculosis; social and economic effects of alcohol; infant mortality; the influence of Christian Science and irregular medical cults on the public health; the physical factors in marriage and divorce, in race suicide, and in the social evil. The founder stated that preventive medicine is a social matter; that fully 75 per cent. of our physical ailments are caused by existing social and economic conditions.

**BIBLIOGRAPHY.** Among the books of greatest interest to the sociologist were the following:

Davenport (C. B.), *Eugenics: The science of human improvement by better breeding*; Haddon (A. C.), *The races of man and their distribution*; Frazer (J. G.), *Totemism and exogamy; a treatise on certain ancient forms of superstition and society* (4 vols.); Bartlett (F. C.), *L'évolution sociale*; Haeckel (E.), *Evolution of man; a popular scientific study* (2 vols.); King (I.), *The development of religion: a study in anthropology and social psychology*; Ross (E. A.), *Latter day sinners and saints*; Samuelson (J.), *The human race: its past, present and future*; Small (A. W.), *Adam Smith and sociology; a study in the methodology of the social sciences*; Worms (R.), *Les principes biologiques de l'évolution sociale*; Baldwin (J. M.), *The individual and society*; Ellis (H.), *The Criminal; American Sociological Society, Papers and proceedings*, vol. 4; Balch (E. G.), *Our Slavic fellow citizens*; Bateson (W.), *The methods and scope of genetics*; Gumpłowicz (L.), *Der Rassenkampf* (2d ed.); Le Bon (G.), *The crowd: A study of the popular mind* (new but unrevised ed.); Fishberg (M.), *The Jews: A study of race and environment*; Ellwood (C. A.), *Sociology and modern social problems*; Sidney and Beatrice Webb, *The state and the doctor*; Hawkins (C. B.), *Norwich: A social study*.

More complete lists may be found in *The Economic Bulletin*, and *The American Journal of Sociology*; periodical literature is listed in the former, and in *The Reader's Guide*, and the *Annual Library Index*.

**SODIUM.** See ATOMIC WEIGHTS.

**SOILS.** GROWING INTEREST IN SOIL CONSERVATION. Soil investigation was greatly stimulated during 1910 by a rapidly developed appreciation of the importance of conserving

soil resources and more efficiently utilizing them in crop production. There never was greater activity than during the past year in taking inventories, by means of soil surveys and investigations, of the resources and possibilities of the soil, and in disseminating knowledge of improved methods of soil culture. The need of soil conservation is indicated by estimates published by F. W. Clarke of the United States Geological Survey, according to which the soil covering of the earth is being washed away at an average rate of 68.4 tons per square mile annually, the highest rate of denudation being 100 tons in Europe, the lowest 44 tons in Africa. The estimated rate for North America is 79 tons. It is significant that the region of greatest denudation, viz., Europe, is also the region of most intensive culture and highest average production per acre. The maintenance of this high level of production is due to the fact that some of the older countries of Europe practise improved methods of culture and for many years have steadily drawn upon the fertility of newly settled regions in the form of fertilizing materials and feeding stuff rich in fertilizing constituents and thus kept the balance of fertility in their favor. The United States on the other hand has been for many years a large exporter of soil fertility.

A. D. Hall of Rothamsted points out that there is a limit to the level to which the production of any soil may be raised, and lays down the important principle that the higher the level of production the larger the waste of soil fertility, especially nitrogen, and the greater the need of fertilizers.

**SOIL INVESTIGATIONS.** The past year furnished many evidences of a widespread awakening of interest in methods of soil investigation. Noteworthy among these was the holding of a second International Agrogeological Congress at Stockholm in August, the first having been held in Budapest in April, 1909. The congress was attended by representatives of many countries and considered all phases of soil investigation with the special purpose of securing uniformity of methods.

The U. S. Bureau of Soils continued its comprehensive surveys of the soils of the United States. Surveys were carried on during 1910 on 59 areas in 26 States, detailed surveys being made of 22,762 square miles and reconnaissance surveys of 79,108 square miles (mainly on the Great Plains). The total area surveyed and mapped by the Bureau up to June 30, 1910, was 359,564 square miles or 230,120,960 acres. These and similar surveys made in other countries have been found specially useful in land valuation and crop adaptation.

The value of native vegetation as an index of the quality of land, to which Hilgard called attention many years ago, received confirmation during the year by the observations of H. L. Shantz of the U. S. Department of Agriculture on the dry lands of the United States, indicating that the native vegetation furnishes an index of soil moisture conditions and thus a reliable basis for classification of the soils for crop production. A. D. Hall in a study of the correlation of crops and soils in England found a rather close relation between crop adaptation and the temperature and moisture conditions of the soil as determined by the size of the soil particles and their structure or arrangement.

**HUMUS COMPOUNDS.** The importance of humus as a soil constituent was recognized by a number of investigations during the year which did much to clear up the exact chemical nature of the humus compounds, the processes by which they are formed, and the rôle they play in connection with plant growth. Several compounds, some of which are believed to be toxic to plants, were isolated from the organic matter of the soil and their properties studied in the laboratories of the United States Bureau of Soils.

**PLANT FOOD AND SOIL.** Further investigations in the available plant food of the soil tend to show that except in very fertile soils the final crop yield is determined not by the amount of plant food readily available at any given time but by the rate at which the insoluble plant food becomes available during the growing season. The importance of the concentration of the soil solution was emphasized by the work of Widtsoe of the Utah experiment station, showing that plants require less water on rich soils than on poor. That the relative proportion of the soil constituents is of great importance is shown by the fact that Loew found the infertile condition of certain Porto Rican soils and Snowden found the diseased condition of orange and lemon trees in Southern California to be due to excess of magnesia over lime in the soils. Kelley and Guthrie found the unproductiveness of certain Hawaiian and Australian soils to be due to the presence of an excess of manganese.

**SOIL MOISTURE.** Attention was called to the importance of deep plowing and thorough surface tillage in conserving soil moisture by several investigations reported during the year. On the other hand Hitler reported upon the lowering of the ground water level and the failure of springs in certain parts of France, attributing this to the extension of the area of clean culture.

**SOIL BACTERIOLOGY.** It is in the field of soil bacteriology that probably the greatest amount of work was done and the greatest progress made during 1910. Russell and Hutchinson of Rothamsted made further important contributions to their theory of the effect of partial sterilization by heat or volatile antiseptics on the bacterial activity of the soil which was referred to in last year's review. This theory is that partial sterilization destroys the protozoa which feed upon the ammonia-producing bacteria of the soil but does not completely destroy the latter, which, freed from their enemies, multiply rapidly and increase the fertility of the soil by the production of ammonia. This has been declared by A. D. Hall to be "the most notable addition to the theory of the soil since the publication of Hellriegel and Wilfarth's paper on the root nodule bacteria in 1886." Many other investigations throwing light on conditions favoring beneficial bacterial activity in the soil were reported during the year and much attention was given to studies of nitrification.

**NITRIFICATION.** Headden of the Colorado experiment station reported cases of phenomenal nitrification in certain Colorado and California soils. He found that certain barren so-called "alkali spots" of more or less common occurrence were really "niter spots" the surface soil of which in some cases contained over 5 per cent. of nitrates.

**LITERATURE.** Important contributions to the more permanent literature of soils during the year were a technical treatise on Soil Fertility and Permanent Agriculture and a popular book entitled *The Story of the Soil*, by C. G. Hopkins; an English treatise on Soils and Manures by J. A. Murray; and an *Introduction to the Study of the Soil Solution*, by F. K. Cameron.

**SOLAR SYSTEM.** See ASTRONOMY.

**SOLOMON ISLANDS.** See BRITISH and GERMAN SOLOMON ISLANDS; ANTHROPOLOGY AND ETHNOLOGY.

**SOMALILAND.** See BRITISH and ITALIAN SOMALILAND; FRENCH SOMALI COAST.

**SOMBART, W.** See LITERATURE, ENGLISH and AMERICAN, *Political and Social Science*.

**SONE, ARASUKE, Viscount.** A Japanese statesman and administrator, died September 13, 1910. He was born in 1849, in Choshu, Japan. From 1872 to 1877 he studied military tactics in France, but soon after the latter date he left the army to enter the civil service. From 1881 to 1890 he was councillor of the Legislative Bureau and held other positions. In the latter year he became secretary of the Lower House. In 1902 he was elected to Parliament and became vice-president of the House. Re-entering the government service he represented Japan at Paris from 1893 to 1897. He accepted the portfolio of justice in the third Ito Cabinet in 1898, and was Minister of Agriculture and Commerce from 1898 to 1900 in the Yamagata cabinet. In 1909 he was appointed administrator to Korea to succeed the late Prince Ito.

**SOTHERN, E. H.** See DRAMA.

**SOUTH AFRICAN UNION;** officially entitled the UNION OF SOUTH AFRICA. A British dominion, occupying 473,183 square miles (estimate) in the extreme south of the continent. Population (about), 5,200,000, of whom 1,120,000 are white. Capital, Pretoria, in the Transvaal Province.

The Union of South Africa is constituted under the South Africa Act 1909 (9 Edw. 7, Ch. 9) passed by the Parliament of the United Kingdom, on Sept. 20, 1909. In terms of that act the self-governing colonies of the Cape of Good Hope, Natal, the Transvaal, and the Orange River Colony became united on May 31, 1910, in a legislative union under one government under the name of the Union of South Africa, those colonies becoming original provinces of the Union under the names of the Cape of Good Hope, Natal, the Transvaal, and the Orange Free State (qq. v.) respectively.

The act constituting the Union provides for the appointment by the sovereign of a governor-general, who, with an executive council (of which the members are chosen and summoned by him), administers the executive government of the Union as the governor-general in council. Departments of state are established by the governor-general in council, the governor-general appointing not more than ten officers to administer them. Such officers are king's ministers of state for the Union and members of the executive council.

The Senate consists of 40 members. For ten years after the establishment of union eight are nominated by the governor-general in council and 32 are elected, eight for each province. The first election was made prior to the establishment of the Union by the two houses of each of the colonial legislatures sitting as one body,

and a vacancy will be filled by the choice of the provincial council in respect of whose province a vacancy occurs.

The House of Assembly consists of 121 elected members, 51 of whom represent the Cape of Good Hope, 17 Natal, 36 the Transvaal, and 17 the Orange Free State. Members of both houses must be British subjects of European descent.

Pretoria is the capital and seat of government of the Union. Cape Town is the seat of the legislature.

The first parliamentary election under the South Africa Act was held on Sept. 15, 1910. (See below.)

A provincial council in each province has power to legislate by ordinance on certain subjects specified in the act, and on such other subjects as may be delegated to it. All ordinances passed by a provincial council are subject to the veto of the governor-general in council. Members of the provincial council are elected on the same system as members of Parliament, but the restriction as to European descent does not apply. The number of members in each provincial council is as follows: Cape of Good Hope, 51; Natal, 25; Transvaal, 36; Orange Free State, 25.

The first provincial elections for the Cape of Good Hope and the Transvaal were held on September 15, 1910; those for Natal and the Orange Free State, on October 12, 1910.

The executive power in the subjects on which the provincial council is empowered to make ordinances is vested in an executive committee consisting of an administrator, appointed by the governor-general in council, and four members elected by the provincial council.

Governor-General, Viscount Gladstone of Lanark; Prime Minister and Minister of Agriculture, Louis Botha; Minister of Railways and Harbors, J. W. Sauer; Minister of the Interior, of Mines, and of Defense, J. C. Smuts; Minister of Justice, J. B. M. Hertzog; Minister of Education, F. S. Malan; Minister of Finance, H. C. Hull; Minister of Lands, A. Fischer; Minister of Native Affairs, H. Burton; Minister of Commerce and Industries, vacant; Minister of Public Works, and of Posts and Telegraphs, D. P. de V. Graaf; Minister without Portfolio, Dr. C. O'Grady Gubbins.

## HISTORY

**THE NEW ADMINISTRATION.** In December, 1909, Mr. Herbert Gladstone, afterwards raised to the peerage under the title of Viscount Gladstone, was appointed governor-general of the Union. He sailed for South Africa on April 30, 1910. Lord Selborne, after farewell visits to the several capitals, sail for England on May 18. Great regret was expressed at his departure. His labors in South Africa had lasted for five years and consisted chiefly of consolidation and reconciliation pursuant to the policy begun by Lord Milner. He had successfully executed his task and had done much to weld the colonies together into a single dominion. It was a difficult position since the ill feeling engendered by the war caused intense partisanship. The Chinese labor question reached an acute stage during his term of office and the educational problem also offered serious difficulty. Though he took no public part in the union movement his influence was effective in bringing it about. The first duty

of the new governor-general was to choose a prime minister. There were strong partisans of both Mr. Merriman and General Botha, but the latter was finally appointed the first Premier under the Union. On May 30 the members of General Botha's cabinet were announced. They included, among others, Mr. Smuts as Minister of the Interior, General Hertzog as Minister of Justice, and Mr. Fischer as Minister of Lands. It contained four members of the Cape Ministry, two of the Transvaal, two of the Orange Free State, and two of Natal.

**THE INAUGURATION.** The Union government was formally inaugurated on May 31, the eighth anniversary of the Peace of Vereeniging, which was celebrated under the title of Union Day as a public holiday throughout South Africa with thanksgiving services and patriotic addresses. King George sent a message expressing his hope and confidence that the new constitution would further the highest welfare of South Africa and strengthen the empire. One of the first acts of the new government was to set free Dinizulu, the native chief who had been sentenced to four years' imprisonment in March, 1909.

**THE EDUCATION QUESTION.** On June 14 General Botha in connection with his declaration of policy expressed the hope that all the old party organizations, including his own, would unite in a great party with national principles, to be known as the South African Party. Chief among the questions that confronted the government was, he said, the task of fusing the different races into one great people. The aims of the government would be the encouragement of the white population, a broad educational policy, and the prevention of Asiatic immigration. On this programme he believed all ought to be able to unite. The government, when questioned as to its policy on the language question, replied that they were in favor of teaching the child through the medium of its mother tongue as far as possible throughout the state, even if it involved greater expense. This policy was announced by the Central Council which had been appointed to establish schools on that basis. Early in July it declared as the chief features of its programme that the curriculum should be similar to the Transvaal system and that English and Dutch should be taught as languages, and that in the lower courses the pupils should be taught in their mother-tongue; also that teachers are eligible whether they speak both languages or only one of them. Supporters of General Hertzog's policy, while admitting that certain parts of the Union ought not to be forced to adopt his system, held, on the other hand, that the other system ought not to be fastened on those parts of the country which objected to it. General Botha in his speech on July 12 declared that the educational problem should be settled in the spirit that prevailed in the Transvaal. The government policy aimed at equal opportunities of language, the use of the mother-tongue as a medium of instruction, and no compulsion. It did not believe that it was either just or fair to repeal General Hertzog's measure in the Orange Free State.

**THE ELECTIONS.** As the elections of September approached it was evident that the chief issue was the education quarrel in the Orange

Free State, the Opposition accusing the Cabinet of planning to extend the Hertzog system throughout South Africa and saying that General Botha was trying to maintain party divisions which he pretended to deplore. Its leader, Dr. Jameson, declared the chief planks of the Unionist platform to be closer settlement, and improvement of the conditions of labor. Other features of their programme were the promotion of immigration and the introduction of various measures of social reform. The election campaign took place in August. Campaign speeches were made by General Botha, General Hertzog, Dr. Jameson and others. September 22 was fixed as the date for the elections. In this first political campaign under the Union it was too early for parties to divide according to any principles, and the differences continued to follow old lines. The Boer element, in general, which had formerly supported the old organization of Orangia Unie, Het Volk, and the Bond, rallied to the Nationalist party in the Orange Free State, Transvaal and the Cape provinces; whereas the Unionists drew to them the old Progressive element and were recruited chiefly from industrial and commercial classes in the towns. The personalities of the leaders, therefore, became more prominent than matters of principle. General Botha, who in the course of a very few months had risen from obscurity to the command of the army in the Transvaal during the South African War, became the logical leader after the British government granted the country autonomy, and proved himself a remarkably able and open-minded chief, winning the confidence of both races. Dr. Jameson, the leader of the Opposition, re-entered public life at about the same time that General Botha was winning his military fame, and by his political ability and personal honesty overcame the hostility of the Dutch and the indifference of the British, rising finally to a position of acknowledged leadership. Besides the difference in race as an element in politics there was a difference in institutions and occupation. The Nationalists were mainly farmers, or in some way associated with rural interests, and among the Unionists were more of those who were concerned with industrial or commercial affairs. The Opposition developed unexpected strength and as a result of the elections the position of the parties was as follows: Nationalists, 67; Unionists, 37; Labor members, 4; Independents, 13. Thus the Nationalists secured a majority of 13 over all parties.

**THE FIRST UNION PARLIAMENT.** Parliament met for preliminary business on October 31, and was formally opened on November 4 by the Duke of Connaught, who had been appointed as Royal representative for that purpose. The education question came up very early in the session of the Parliament. The Minister of Education summoned a conference of the Directors of Education in the four provinces to consider the question of the use of the languages and to recommend some means of securing uniform practice. On November 14 the Opposition in the House gave notice of a motion declaring that the Orange Free State educational legislation was in conflict with the principles of freedom and of equality of opportunity for both races in the South African Constitution. After the opening of Parliament the Duke of Connaught made a tour throughout the country. At Endaba he met a deputation of the native

chiefs, who, in their address, expressed great alarm lest they be forced into the Union and their lands be taken. In his reply the Duke reassured them, saying that they should not come into the Union until the King decided that it was necessary. On November 26 he laid the foundation stone of the new government public offices at Pretoria. He received an impressive civic welcome at Johannesburg.

**SOUTH AUSTRALIA.** A state of the Australian Commonwealth. Capital, Adelaide. Area, 903,690 sq. miles. Estimated population, December 31, 1909, 412,808. For details, see AUSTRALIA. The executive authority is vested in a governor, appointed by the British Crown and assisted by a responsible ministry. The legislative power devolves upon a parliament of two elective houses, the Legislative Council and the House of Assembly. Governor in 1910, Admiral Sir Day Hort Bosanquet; Premier (in the ministry constituted June 2, 1910), John Verran.

**HISTORY.** The South Australian elections at the end of March gave a majority of 2 to the Labor party in the legislature, thus defeating the coalition government of Mr. Peake and Mr. Butler, formed in December, 1909. Parliament met on June 2, and the Labor party carried a vote of want of confidence by 22 to 19, whereupon a Labor Ministry was formed under Mr. Verran as Prime Minister. Mr. Verran outlined the policy of the government early in July. An important feature of it was the election of a legislative council on the basis of adult suffrage. Other matters for legislation were the transfer of the Northern Territory to the Commonwealth; a progressive land tax provided the Federal measure did not pass; the breaking up of deadlocks between the two Houses; compulsory repurchase of land, etc. The government's proposals as to public works included extensive railway building and the widening of the outer harbor of Adelaide. The Legislative Council passed a measure repealing the act by which South Australia surrendered the Northern Territory to the Commonwealth. The government brought in a measure in the latter part of November for a loan of £6,800,000 to be applied to reproductive works.

**SOUTH CAROLINA.** One of the South Atlantic Division of the United States. Its area is 30,989 square miles. Its capital is Columbia.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 1,515,400, as compared with 1,349,316 in 1900, and 1,151,149 in 1890. The increase in the decade 1900 to 1910 was 13.1 per cent. The State ranks twenty-sixth in point of population, whereas in 1900 it ranked twenty-fourth. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** The chief mineral products of the State are those connected with phosphate rock. The production of these in 1908, the latest year for which statistics are available, was 225,495 tons, valued at \$989,881. This was a slight decrease over the production of 1907. The value, however, was greater than in that year. Phosphate beds occur interruptedly in a belt, the lower limit of which extends along a line from a point near the source of the Wanda River in Charleston county to the mouth of the Broad River. The belt follows the coast, running back as far as twenty miles from

the ocean. Phosphate rock occurs in two forms, as land rock and river rock. The river rock is mined from the river channels. Next to phosphate rock, the chief minerals in point of value are the products of clay. In 1908 these amounted in value to \$615,248. Stone is produced in considerable quantities and gold also occurs in the State. The gold products in 1910 were valued at \$31,566. Among other products are stone, gas, coke and monazite. Kaolin, fire clay, peat and tin are also found in the State, and there are deposits of iron in various places.

**AGRICULTURE.** The acreage, production and value of leading crops are given for 1909 in the following table:

	Acreage.	Prod. bu.	Value.
Corn, 1910.....	2,418,000	44,733,000	\$36,681,000
1909.....	2,218,000	37,041,000	33,337,000
Winter wheat, 1910.....	453,000	4,983,000	6,279,000
1909.....	381,000	3,810,000	5,563,000
Oats, 1910.....	219,000	4,599,000	2,989,000
1909.....	211,000	4,431,000	3,190,000
Rye, 1910.....	4,000	40,000	58,000
1909.....	4,000	39,000	55,000
Rice, 1910.....	17,000	357,000	268,000
1909.....	18,600	476,000	433,000
Potatoes, 1910.....	10,000	900,000	945,000
1909.....	9,000	765,000	880,000
Hay, 1910.....	67,000	84,000a	1,344,000
1909.....	66,000	81,000	1,256,000
Tobacco, 1910.....	30,000	18,900,000b	1,625,000
1909.....	66,000	32,000,000	2,336,000
Cotton, 1910.....		1,116,000c	
1909.....		1,099,000	

a Tons. b Pounds. c Bales.

**EDUCATION.** The total enrollment in the public schools of the State in 1910 was, white children, 156,051, and colored children, 184,364. The average attendance of white children was 114,731, and of colored, 129,170. The total number of schools in the State was 5088. Of these 2702 are for white children and 2386 for colored children. In these schools are employed 6968 teachers, 1606 men, and 5362 women. Of these 4352 were white and 2616 colored. The average annual salary paid white teachers during the year was \$539.46 for men and \$253.26 for women, while the average salary paid to colored teachers was \$118.18 to men and \$94.30 to women. Great advance has been made in recent years in the State in agriculture and industrial education. The extension work carried on by the Clemson College has had excellent results. During 1910 the principals of the college placed in the field a rural school agriculturist, who devotes his entire time to field work. The rural schools of the State have been for many years in poor condition, largely as a result of the lack of funds. The Board which administers the Peabody fund has undertaken a systematic campaign for the betterment of rural schools in the State. This plan provides for the appointment of a State supervisor of elementary rural schools, who is associated directly with the State Department of Education, and is the field representative of that officer. The high schools of the State are in a better condition than the rural schools. The first high school conference was held in the University of South Carolina, during the spring of 1910, and much benefit was derived from its discussion.

**CHARITIES AND CORRECTIONS.** The charitable and correctional institutions of the State include the Industrial School for White Boys at Florence, the State Hospital for the Insane at

Columbia, and the South Carolina Penitentiary at Columbia.

### POLITICS AND GOVERNMENT

There was no session of the legislature of the State in 1910, as the sessions are biennial, and the last was held in 1909. The next session begins January 11, 1911.

**CONVENTIONS AND ELECTIONS.** South Carolina is so emphatically a Democratic State that the nomination of Democratic candidates for office amounts practically to election. The chief issue in the State in 1910 was the liquor question. The State for several years has been under the dispensary system, which proved a failure. There has been a strong sentiment for prohibition in the State, but dissatisfaction with the dispensary system has brought about a reaction, so that the prohibition forces are somewhat weakened. At the State primaries, held for nomination of State officers September 16, Coleman L. Blease, a Democrat and anti-Prohibitionist, received the nomination for governor. The Republican party made no nominations for State officers. The Socialists, however, nominated C. W. Manning for governor. In the election on November 8, Mr. Blease received practically all the votes cast in the State, 30,739, as against 70 cast for the Socialist candidate. The other Democratic State nominees were elected by practically the same vote.

**STATE OFFICERS.** Governor, Coleman L. Blease; Lieutenant-Governor, C. A. Smith; Secretary of State, R. M. McCown; Attorney-General, J. F. Lyon; Treasurer, R. H. Jennings; Comptroller-General, A. W. Jones; Superintendent of Education, J. E. Swearingen; Adjutant-General, W. W. Moore; Commissioner of Agriculture, E. J. Watson; Commissioner of Insurance, F. H. McMaster—all Democrats.

**JUDICIARY.** Supreme Court: Chief Justice, Ira B. Jones; Justices, C. A. Woods, Eugene B. Gary, D. E. Hydrick; Clerk, U. R. Brooks—all Democrats.

**STATE LEGISLATURE, 1911.** Democrats, Senate, 43; House, 124; Joint Ballot, 167.

**SOUTH DAKOTA.** One of the West North Central Division of the United States. It has an area of 77,614 square miles. Its capital is Pierre.

**POPULATION.** The population in 1910, according to the Thirteenth Census, was 583,888, as compared with 401,570 in 1900, and 348,600 in 1890. The percentage of increase in the decade from 1900 to 1910 was 45.4 per cent. The State ranks thirty-sixth in point of population, whereas in 1900 it ranked thirty-eighth. The population of the larger cities and towns will be found in the tables in the articles UNITED STATES CENSUS.

**FINANCE.** The report of the treasurer for the fiscal year ending June 30, 1910, showed a balance on hand July 1, 1909, of \$789,886. The receipts for the year were \$4,439,864, and the disbursements were \$4,567,182, leaving a balance on hand June 30, 1910, of \$662,569.

**CHARITIES AND CORRECTIONS.** The charitable and correctional institutions of the State include the School for the Deaf, the Northern Hospital for the Insane, the School for the Blind, State Penitentiary, Soldiers' Home, and the Hospital for the Insane. The disbursements for these institutions during the year were as follows: School for the Deaf, \$882; the Northern Hospital, \$6414; School for the

Blind, \$906; Penitentiary, \$24,356; Soldiers' Home, \$1362; and Hospital for the Insane, \$6213.

**MINERAL PRODUCTION.** The only mineral product of considerable importance in the State is gold, which is found almost entirely in the Black Hills in the Homestake Mines. The value of the gold produced in 1910 was 5,187,070, a considerable decrease over the value of the product of 1909, which was \$6,573,600. There were produced of silver 113,460 fine ounces as compared with 196,300 fine ounces in 1909. A small amount of copper was mined in the State in 1909. This amounted to 41,988 pounds.

**AGRICULTURE.** The acreage, production and value of leading crops for 1909 and 1910 are given in the following table:

	Acreage.	Prod. bu.	Value.
Corn, 1910.....	2,162,000	54,050,000	\$21,620,000
1909.....	2,059,000	65,270,000	32,635,000
Spring wheat 1910	3,650,000	46,720,000	41,581,000
1909	3,375,000	43,500,000	42,839,000
Oats, 1910.....	1,525,000	35,075,000	10,522,000
1909.....	1,450,000	43,500,000	14,790,000
Barley, 1910.....	1,025,000	18,653,000	10,633,000
1909.....	1,021,000	19,910,000	8,960,000
Rye, 1910.....	35,000	595,000	363,000
1909.....	33,000	578,000	341,000
Flaxseed, 1910.....	860,000	3,300,000	7,587,000
1909.....	800,000	5,640,000	8,516,000
Potatoes, 1910.....	55,000	2,420,000	2,057,000
1909.....	50,000	4,000,000	2,520,000
Hay, 1910.....	510,000	408,000a	2,397,000
1909.....	636,000	804,000	4,100,000

a Tons.

### POLITICS AND GOVERNMENT

There was no session of the State legislature in 1910, as the sessions are biennial, and the last was held in 1909.

**ELECTIONS.** In the primaries, held on June 7, Governor Vessey was renominated by the Republicans. Congressmen Martin and Burke were also renominated. The Democrats nominated C. L. Wood for governor. In the election held on November 8, Governor Vessey was re-elected by a majority of about 20,000. The proposed county option measure was defeated by about 15,000 votes as was also the proposed amendment providing for woman suffrage.

Six laws and six amendments to the constitution were voted on, all being defeated except one allowing State school lands to be leased for agricultural purposes. The ballot was seven feet long and ten inches wide. The State gold production was lessened by reason of the big strike in the Homestake Mines. The bank reports for December showed deposits for \$100 per capita in the State. The State again shows the largest per capita increase of wealth during the year of any State in the Union.

Considerable progress in railroad building was made in 1910. Natural gas is becoming more extensively used at Pierre and westward. All power plants in the capital city are run by gas this year.

A large amount of Indian reservation land was opened to homesteaders. Dewey County was organized.

**STATE OFFICERS.** Governor, R. S. Vessey; Lieutenant-Governor, Frank M. Byrne; Secretary of State, R. S. Polley; Treasurer, George Johnson; Auditor, H. B. Anderson; Attorney-General, Royal C. Johnson; Superintendent of Education, C. G. Lawrence; Commissioner of Lands, F. F. Brinker; Commissioner of Insurance, O. S. Basford—all Republicans.

**SUPREME COURT.** Presiding Judge, Charles S. Whiting; Justices, Dick Haney, Elleson G. Smith, J. H. McCoy and Dighton Corson; Clerk, Frank Crane—all Republicans.

**STATE LEGISLATURE, 1911.** Senate, Republicans, 34; Democrats, 11. House, Republicans, 99; Democrats, 5. Joint ballot, Republicans, 133; Democrats, 16. Republican majority, Senate, 23; House, 94; joint ballot, 117.

**SOUTH, EDUCATION IN THE.** See **EDUCATION IN THE UNITED STATES.**

**SOUTHERN CONFERENCE ON WOMAN AND CHILD LABOR.** See **CHILD LABOR.**

**SOUTHERN NIGERIA.** A British colony and protectorate, formed by the union of Lagos and the old protectorate of Southern Nigeria (1906). Area, 77,260 square miles; approximate population, 6,000,000, largely Yorubas. Capital and chief port, Lagos (57,000 inhabitants). There are government and mission schools. The chief products and exports are mahogany, palm oil and kernels, rubber, cotton, cacao, coffee, gum copal, ivory, hides, nuts, fruits, etc. Manganese, galena, cassiterite, lignite, and monazite are present. Imports (1909), £4,529,604 (Great Britain, £3,788,509); exports, £4,114,237 (Great Britain, £2,003,238). Revenue, £1,361,891; expenditure, £1,648,680. A railway from Iddo Island via Ilorin to Jebba on the Niger (306 miles) is in operation; an extension is building through Zungeru (N. Nigeria) to join the Baro-Kano line. Length of telegraph lines, 1500 miles. Governor and commander-in-chief (1910), Sir Walter Egerton. Military operations which had been going on for some time past against a native secret society, known as the "Silent Ones," resulted in the surrender of a force of 200 in June.

**SOUTHAMPTON DOCKS.** See **DOCKS AND HARBORS.**

**SOUTH POLE.** See **POLAR RESEARCH**

**SPAIN.** A constitutional monarchy of western Europe. Capital, Madrid.

**AREA AND POPULATION.** Area of continental Spain, 190,050 sq. miles; with the Balearic and Canary Islands, and the possessions on the African coast (north), 194,794. Population (1900), 18,618,086; estimated Dec. 31, 1909, 20,068,381. Marriages (1909), 129,493; births, 650,690; deaths, 466,639; emigrants, 142,717; immigrants, 92,042. Madrid had (1900) 539,347 inhabitants; Barcelona, 530,344; Valencia, 163,425; Seville, 145,721; Malaga, 112,971; Saragoassa, 81,639; Cadiz, 65,161.

**EDUCATION AND RELIGION.** Primary education is mainly free and nominally compulsory. Many private schools are under clerical control; and a large proportion of the population are illiterate. There are some 32,000 schools, with about 2,350,000 pupils. The secondary institutions are insufficient. There are nine universities.

The Roman Catholic is the State religion, and the public observance of any other form of worship was prohibited till June, 1910, when a royal decree was issued permitting dissident congregations to distinguish their places of worship by emblems or letterings. There are 3253 religious associations, with 50,670 members (40,040 women). Of the total expenditure

(aside from the service of the debt), it is estimated that one-tenth, or over 41,000,000 pesetas annually, goes to the support of the church. Under this burden, and with the continual encroachment of church privilege, popular discontent has steadily grown, till the anti-clerical movement has become a serious factor in the politics of the day.

**AGRICULTURE.** Of the total area, 79.65 per cent. is productive; of this, 33.8 per cent. is under crops and gardens, 3.7 under vineyards, 1.6 under olives, 19.7 under pasture, 20.8 under fruits. The area under principal crops and the yield are given as follows for two years:

	1000 acres		1000 bushels	
	1909	1910	1909	1910
Wheat .....	9,347	9,598	144,105	187,236
Barley .....	3,480	3,405	81,579	83,938
Rye .....	2,059	2,067	34,901	32,041
Oats .....	1,227	1,278	34,307	80,728
Corn .....	1,149	.....	26,436	24,960
Vines a .....	3,194	3,127	471,000	598,000
Olive Oil b .....	3,445	3,443	1,541	264
Olives b .....	.....	.....	676	189
Saffron c .....	30	.....	312	.....
Rice c .....	.....	.....	456,950	472,704

a Yield in 1000 gals. b Yield in 1000 tons.  
c Yield in 1000 lbs.

Other agricultural products are esparto grass, flax, hemp, pulse, almonds and other nuts, and fruits. Livestock (1908): 445,776 horses, 1,622,282 mules and asses, 2,452,197 cattle, 16,119,051 sheep, 3,355,404 goats, 2,120,177 swine. Silk culture is carried on in several provinces. Spain is a sparsely timbered country, and imports quantities of lumber.

**MINING.** Spain abounds in iron, copper, lead, and other minerals; its resources are only partially exploited and chiefly by foreign capital under foreign management. Strikes were prevalent in 1910. The coal output increased from 1,730,000 metric tons in 1895 to 3,690,000 in 1908. The estimated consumption in 1908 was 5,638,000 tons, the deficiency being made up by imports, largely from Great Britain. Other mining products are iron, 9,896,176 metric tons in 1907; copper, 3,182,645; iron pyrites, 225,950; zinc, 191,853; argentiferous lead, 165,289; lead, 113,632; manganese, 41,504; mercury, 28,789; sulphur, 27,045; phosphorite, 3547; silver, 672; tin, 315; salt, 605,895.

**OTHER INDUSTRIES.** The manufactories of cotton textiles employ about 68,300 looms, with 2,614,500 spindles; of woollens, 8800, with 662,000. There are 144 paper mills and 34 glass-factories. The cork manufactories produce about 30,000 tons annually.

The fisheries employ about 14,700 boats and 67,000 men; value of annual catch (mostly sardines, tunny fish, and cod), about 38,000,000 pesetas.

**COMMERCE.** The special trade is shown for three years in pesetas:

	1907	1908	1909
Imports ..	947,813,634	981,625,369	951,021,647
Exports ..	943,550,526	896,342,677	926,078,722

Details of the trade for 1909 are reported as follows in thousands of pesetas:

Classes	Imports	Exports
Foodstuffs, beverages, etc.....	158,083	320,846
Drugs and chemical products....	123,231	36,162
Cotton and cotton manufactures..	121,540	64,922
Machinery, etc.....	119,868	3,394
Minerals and ceramics.....	107,314	170,224
Animals and animal products....	78,895	56,365
Metals and metal manufactures..	56,979	153,957
Timber, wooden goods, etc.....	52,509	50,701
Vegetable fibre other than cotton.	27,547	2,608
Silk and silk manufactures.....	19,645	5,760
Wool and woolen goods.....	18,297	25,783
Paper and paper manufactures...	14,491	11,013
Various.....	19,026	8,209
Special imports.....	25,711	.....
Packing.....	2,747	.....
<b>Total merchandise.....</b>	<b>945,683</b>	<b>910,914</b>
Precious metals.....	5,339	15,165
<b>Total.....</b>	<b>951,022</b>	<b>926,079</b>

To show the principal articles of trade the following returns from a British source are given for the imports from and exports to Great Britain, in thousands of pounds sterling (1909):

Imports	Exports
Coal, etc..... £1,405	Iron..... £3,684
Coal, 1908..... 1,450	Oranges..... 2,085
Manure..... 741	Copper..... 1,224
Machinery..... 524	Lead..... 1,143
Machinery, 1908.. 595	Pyrites..... 952
Metals..... 415	Onions..... 640
Cottons..... 320	Nuts..... 558
Cottons, 1908.... 216	Wine..... 449
Wool, etc..... 253	Raisins..... 376
Chemicals..... 215	Grapes..... 320
Ships, etc..... 182	Fruits (other).. 259
Ships, 1908..... 216	Quicksilver.... 297
Yarn, etc..... 96	Esparto..... 193
Yarns, 1908..... 89	Cork..... 188
	Silver..... 113
	Olive oil..... 108

The principal countries of origin and destination, with the value of their trade in 1908, were: Great Britain, imports and exports, 196,195,000 and 268,886,000 pesetas respectively; France, 142,762,000 and 157,653,000; United States, 138,513,000 and 41,065,000; Germany, 104,916,000 and 53,637,000; Portugal, 47,855,000 and 41,654,000; Belgium, 27,322,000 and 27,176,000; Argentina, 26,425,000 and 49,339,000. Vessels entered (1908), 19,588, of 18,673,034 tons (10,517, of 6,988,613 tons Spanish); cleared, 17,728, of 19,129,029 tons (534, of 7,043,909 tons Spanish).

Railways in operation January 1, 1910, 14,596 kilometres (9069 miles). Telegraph lines (1908), 36,158 kilometres; wires, 80,927; offices 1735. Post-offices, 4845.

FINANCE. The peseta, the monetary unit, is valued at 19.3 cents. The revenue and expenditure for three years are given in pesetas:

	1907	1908	1909
Rev. ...	1,079,830,297	1,072,126,621	1,065,569,995
Exp. ...	1,009,443,561	1,025,888,290	1,100,932,925

a Including 53,799,594 pesetas for military operations at Melilla.

The total of the public debt stood January 1, 1909, at 9,431,625,572 pesetas. Against its total obligations the government held credit balances at the Bank of Spain amounting at the end of 1909 to 129,157,482 pesetas. The conversions of the peseta were made at the nominal rate of 19.3 cents; the average exchange value in 1909 was 17.5 cents.

The budget for 1910 is seen below, in thousands of pesetas; totals, 1,090,757,427 and 1,048,886,064:

Revenue	1000 p.	Exp.	1000 p.
Direct taxes....	466,938	Debt.....	407,857
Indirect taxes:		War.....	164,070
Customs.....	154,300	Agriculture....	105,663
Sugar.....	32,000	Interior.....	79,999
Alcohol.....	15,000	Pensions.....	75,069
Salt.....	61,800	Instruction....	53,522
Transport.....	25,000	Worship.....	41,337
Stamps.....	80,000	Tax Dept.....	35,185
Other.....	14,600	Marine.....	31,858
Monopolies:		Finance.....	17,484
Tobacco.....	139,500	Justice.....	16,314
Matches.....	10,300	Civil list.....	8,900
Lottery.....	38,300	Foreign Affairs.	6,111
Explosives....	3,555	Leg. body.....	2,408
Other.....	2,700	Judiciary.....	1,064
Domains.....	17,949	Colonies.....	1,900
Treasury.....	28,815	Council.....	644
<b>Total.....</b>	<b>1,090,757</b>	<b>Total.....</b>	<b>1,048,886</b>

ARMY. The law of December 26, 1907, governs the organization of the army which is restricted to an effective strength of 80,000 which at certain times of the year can be increased by the Minister of War to 100,000, if corresponding reductions are made at other times to compensate for the extra expense. Thus there is maintained for the second battalions of infantry regiments and the fourth squadron of cavalry regiments only a skeleton organization. Service is obligatory but there are numerous exceptions and in 1910 the contingent amounted to 127,029 men of whom 75,000 were embodied. Three years are spent in the active army; three in the first reserve, and six in the second reserve. The military estimates of 1910 gave the establishment as 80,000 officers and men, of which 45,000 were infantry, 12,600 cavalry, and 13,000 artillery, these figures including the garrisons of Ceuta, Melilla, Minorca, and the Canaries. There are eight captain-generalcies with headquarters at Madrid, Seville, Valencia, Barcelona, Saragossa, Burgos, Valladolid, and Coruña, respectively. There are 14 divisions to the army and the organization was as follows: Infantry, 59 regiments; chasseurs, 20 battalions; 4 African regiments, 2 regiments in Balearic Islands, 2 regiments in Canary Islands, recruiting cadres, etc. Cavalry, 28 regiments and 3 squadrons for foreign possessions. Artillery, 13 field, 1 siege and 3 mountain batteries, each with 6 guns, 14 fortress battalions, 1 central gunnery school, 1 central remount committee and 4 companies of artificers. There were 4 regiments of sappers and miners, 1 pontoon regiment, 1 telegraph battalion, 1 topographical brigade, 1 company of artificers and 8 reserve depots, with 5 separate companies of sappers and miners for the Balearic Islands. The new artillery armament of 1909 had been tested at Melilla, and the Schneider 12-pounders were distributed throughout the artillery. During the year the African garrison was reorganized and a number of changes in the high commands were made. The war estimates of 1910 sanctioned amounted to 164,070,402 pesetas, which included some special charges for Ceuta and Melilla, though the cost of operations in North Africa was borne as a special credit. The effective strength of the permanent army for 1911 was fixed at 115,432 men by the law of December 7, 1910.

NAVY. The navy was almost entirely de-



**SEÑOR JOSÉ CANALEJAS**  
**PRIME MINISTER OF SPAIN**

३७०

stroyed in the war with the United States, the only effective vessels being (1910) one second-class battleship of 9900 tons; 2 armored cruisers of 7000 tons each; one cruiser of 9240 tons; one of 6000; two coast-defense vessels of 7300 tons each; two cruisers of about 2000 tons each; four torpedo-boat destroyers; 13 gunboats; eight torpedo boats. There are three training ships, a royal yacht and some small craft. The scheme of reconstruction provides for three battleships each of 15,460 tons displacement; four gunboats, of 800 tons each; three destroyers (370), and 24 torpedo boats (180). Personnel, 16,700 of all ranks, and 9000 marines.

**GOVERNMENT.** The king is the executive, acting through a responsible council of ministers. The legislative power is vested in the Cortes, a body composed of a Senate of 360 members and a congress of deputies (404). The king (1910), Alfonso XIII., was born May 17, 1886; married, May 31, 1906, to Princess Victoria Eugénie Ena of Battenberg. Heir-apparent, the Prince of the Asturias, Don Alfonso, born May 10, 1907. The Ministry, as constituted February 9, 1910, was composed as follows: Premier, José Canalejas; Interior, Condé de Sagasta; Foreign Affairs, García Prieto; Justice, Ruiz Valarino; War, Lieutenant-General Aznar; Marine, Arias Miranda; Finance, E. Cobián; Instruction, J. Burell; Agriculture, Industry, Commerce, Public Works, F. Cabeltón.

### HISTORY

**MINISTERIAL CRISIS.** The Moret Ministry fell on February 2, as a result of dissensions in the Liberal party. The Premier had been reluctantly supported by the other Liberal leaders from the beginning. Finally, after a speech by the Count de Romanones, accusing him of making overtures to the Republican party, he resigned, saying that a portion of the Liberals were about to revolt. He was succeeded by Señor Canalejas, who represented the young Liberal group, and as this element was more radical than Señor Moret's followers, it was evident that the accusations of the Count de Romanones were merely pretexts. Señor Canalejas constituted the Ministry anew, aiming to give his party coherence and unity. As a result of the final election returns the strength of the parties in the Cortes was as follows: Ministerialists, 227; Conservatives, 105; Republicans, 42; Carlists, 9; Catalanists, 7; Integrists, 2; Independents, 9; doubtful, 3; total, 404. The Republicans gained three seats.

**TROUBLE WITH THE VATICAN.** Difficulty with the Vatican arose in June on account of a Royal Order granting to non-Catholic bodies the right to display the signs of their religion on the walls of their churches and in their notices. The Holy See immediately made a protest to the government. On the opening of the Cortes on June 14, the speech from the throne referred to the Pope and to certain measures for dealing with the excessive increase of religious orders. The words in the King's speech which gave offense to the Vatican were to the effect that the government would give expression to the public aspirations "for the reduction and control of the excessive number of orders and religious congregations without impairing their independence in spiritual matters." The government required prefects to enforce existing rules as to registration, and also entered into negotiations with Rome for the suppression of convents in dioceses

where they were not needed. It also promised a reform of the act of 1887. The Vatican made a formal protest against these measures. In the government's reply to the Vatican protest it adhered to its intention of granting more liberties to the Protestant churches. A mass meeting in which some 20,000 persons took part, organized by the Republican Socialist Union, was held in Madrid on July 3 in support of the government's religious policy. The Vatican in reply to certain criticisms that were made upon it denied that it held an obstinate and uncompromising attitude, but that it was willing to make concessions. A bill was introduced into the Spanish Senate to prohibit the formation of any new religious association until the settlement of the dispute with the Vatican. In July the Spanish government was informed by the Vatican that if negotiations were to continue, the government must repeal the measures it had taken in regard to religion. The Council and the Cabinet assembled, on July 30, decided that having tried to bring about an agreement for the reduction of religious orders it could not now abandon its duties. It also announced that it had recalled its ambassador at the Vatican.

King Alfonso left the country for a visit to England at the beginning of August employing the Prime Minister, Canalejas, to take the necessary measures for the settlement of the dispute with the Vatican. At the Vatican the situation was attributed to anti-Clericalism, at the bottom of which were anti-Monarchical forces aiming at a republic. The situation aroused much interest in foreign countries as an attempt to settle the same problem that France had encountered, but to do so by more moderate means. A Catholic demonstration was planned at Bilbao early in August, but was prevented by the authorities. It issued, however, a manifesto, condemning the arbitrary course of the government. Further anger was caused among the Clericals by the government's refusal to permit the Roman Catholic meeting at Bilbao, on September 25. In other parts of Spain the Roman Catholics continued the demonstrations against the government's religious policy toward the Vatican. There were meetings in Valencia and Saragossa where some disorders occurred. A large meeting, comprising, it is said, some 20,000 persons, took place at Pamplona, and there were also great mass meetings at San Sebastian, Vittoria and Granada.

**MOROCCO.** The long pending dispute with the Moorish government concerning the Spanish indemnity finally resulted in an agreement with the Moorish envoys that Morocco should pay to Spain an indemnity of 65,000,000 pesetas, with interest, for the cost of the Riff campaign. See MOROCCO.

**SPARTA.** See ARCHÆOLOGY.

**SPEAKERSHIP, THE.** See UNITED STATES, Congress.

**SPEAR, J. R.** See LITERATURE, ENGLISH AND AMERICAN, History.

**SPEED LAWS.** See AUTOMOBILE.

**SPELLMEYER, HENRY.** A bishop of the Methodist Episcopal Church, died March 12, 1910. He was born in New York City in 1847, and graduated from New York University in 1866. He studied for the ministry in Union Theological Seminary, and for thirty-five years he was pastor in Newark, N. J., and the immediate vicinity. He was a member of the General

Conference in 1896, 1900, and 1904. In the last-named year he was elected bishop.

**SPELTER.** See LEAD.

**SPENCER, JOHN POYNTZ, Earl.** An English nobleman and public official, died August 13, 1910. He was born in 1835, son of the fourth Earl Spencer. He was educated at Harrow and Trinity College, Cambridge, where he took his degree in 1857. In the same year he succeeded to the earldom. He had previously for a short time been a member of the House of Commons. From 1859 to 1867 he occupied positions in the household of the Prince Consort and the Prince of Wales. In 1868 he was appointed Lord Lieutenant of Ireland and held this position until the resignation of the Gladstone Ministry, in February, 1874. After the Liberals returned to power in May, 1880, he was appointed Lord President of the Council. On the resignation of Earl Cowper in 1882, he was again nominated Lord Lieutenant of Ireland. While serving in this office he retained his place in the Cabinet and was the first ruler in Ireland who held a seat in the Cabinet. He made his entry into Dublin on May 6, the same night on which Lord Frederick Cavendish and Under-Secretary Thomas A. Burke were stabbed to death in Phoenix Park. He held office through the turbulent period of the "crimes act" and until 1885, when the Gladstone Ministry went out of office on the Home Rule issue. In 1883 he had resigned as Lord President of the Council, but he remained a member of the Cabinet until the close of the administration. He joined with Gladstone in support of the home rule issue and was an ardent supporter of the latter's policy. In 1892 he was appointed First Lord of the Admiralty and held that office for three years. From 1901 to 1907 he was Keeper of the Privy Seal of the Duke of Cornwall, an honorary title. Earl Spencer bore the degrees of D. C. L. and LL.D. From 1882 to 1907 he was Chancellor of Victoria University, England. Up to the time of his retirement from public life in 1905 he was one of the most influential men in English politics.

**SPINAL ANÆSTHESIA.** See ANÆSTHESIA.

**SPINDLES.** See COTTON.

**SPIRRILLUM.** See ARSENO-BENZOL.

**SPIRITS.** See LIQUORS, FERMENTED AND DISTILLED.

**SPIRITUALISTS' ASSOCIATION, NATIONAL.** An organization of various spiritualistic societies in the United States representing the developed force in the organizations of spiritualists. The Association holds annual conventions. The convention of 1910 was held in October. One State association was added during the year and many local societies were organized. The membership of the Association increased. The officials of the Association state that it includes 700 societies and churches, 1000 mediums and ministers, 400,000 members and 30 church edifices. The officers for 1911 are: George P. Warne, President; Charles R. Schirm, Vice-President; George W. Kates, Secretary, and Cassius L. Stevens, Treasurer. The convention in 1911 will be held in Wichita, Kansas, October 17-20.

**SPIROCHETES.** See ARSENO-BENZOL.

**SPITZBERGEN.** See POLAR RESEARCH, and NORWAY.

**SPORTS.** All the important athletic events of the year 1910, both in the United States and

other countries, are treated in this work under separate titles such as ATHLETICS, TRACK and FIELD, BASEBALL, BOXING, CYCLING, FOOTBALL, GOLF, LAWN TENNIS, RACING, ROWING, etc.

**SPRAGUE, AUGUSTUS BROWN REED.** An American soldier, public official and banker, died May 17, 1910. He was born at Ware, Mass., in 1827 and received his education in public and private schools. He engaged in mercantile pursuits up to the time of the Civil War. He served throughout the war as Captain, Lieutenant-Colonel and Colonel of the Massachusetts Volunteers. He was brevetted Brigadier-General for gallant and meritorious service during the war. From 1867 to 1872 he was United States collector of internal revenue for the 8th Massachusetts District. From 1871 to 1890 he was sheriff of Worcester county, and from 1896 to 1897 was mayor of Worcester. He engaged in banking and from 1900 to the time of his death was president of the Worcester Mechanics' Savings Bank.

**STAFFORD, W. P.** See LITERATURE, ENGLISH AND AMERICAN, Poetry and Drama.

**STALLION REGISTRATION.** See STOCK-RAISING.

**STANDARD OIL.** In November, 1909, the United States Circuit Court in an opinion given at St. Paul, Minn., and written by Justice Sanborn, declared the Standard Oil Company of New Jersey, J. D. Rockefeller, William Rockefeller, H. M. Hagler, H. H. Rogers, J. D. Archbold, O. H. Paine and Charles M. Pratt, and thirty-six subsidiary companies, a combination in restraint of trade and therefore illegal under the Sherman Act. The Court felt that these parties constituted not only a combination in violation of section one of the Sherman Act but also a monopoly in the violation of section two of that law. Therefore, the court ordered the dissolution of the combination and issued a very broad injunction against the formation of any similar combination. On December 17, an appeal alleging sixty-five errors was filed, thus taking the case to the United States Supreme Court. The case was argued in March. The lawyers for the defense argued that, although the Standard Oil Company included many corporations with various businesses, it is not a combination of hitherto competing corporations but is the final result of more than forty years growth of a single business. They declared that the seven personal defendants, very early in the development of the industry of petroleum refining and sale, had united their forces, and by great skill, enterprise, and untiring energy, together with increasing capital, expanded their business through a great number of subsidiary companies into the complex organization of a world-wide corporation. These men created many new and valuable by-products; they invented methods of storing and shipping oil; they pushed the sale of their products into the remotest corners of the earth and devised new methods of getting and holding the business among many different nationalities. It was argued that, in order to handle this increasing and complex business, they found it advantageous to organize new corporations for the immediate control of special undertakings. The control of all of these, however, always remained in the same hands, therefore, these are only subsidiary companies, convenient agencies; they never were competing corporations and, therefore, could not combine to restrain trade. Consequently the placing of

the control of all of these numerous companies under the Standard Oil Company of New Jersey was merely the best method of unifying under the corporation form the same control which the seven pioneers had held continuously.

The defense argued that whether illegal business methods had at any time been followed by these men or their agents was not pertinent to the present suit, this question having been set aside by the Circuit Court. Moreover it was declared by the lawyers for the defense that the Standard is a private commercial enterprise, not a public service corporation, and therefore may sell and buy with whom it pleases and at any prices, however different. It could also lawfully compete and monopolize all the inter-state products of petroleum and its products. It could lawfully do any of those things which competitors had been accustomed to do in fierce and unrelenting trade wars. It could thus lower prices to drive out competitors and raise them afterwards; it could give away oil for a like purpose; it could buy out a competitor or take him into partnership and it "could use all the shifts and devices of traders to succeed, except that we could not by unlawful fraudulent means deprive any competitor of his equal lawful right to fight for the trade." Consequently the defense held that the decree of the Circuit Court sought to make companies that are only subsidiary agencies become independent and competing concerns; the decree did not seek to restore to independence companies that had combined, for independence had never existed.

The government in the presentation of its case argued that Mr. Rockefeller and his associates very early in the development of this business sought to establish a monopoly by obtaining from the railways profitable rebates and unfair contracts which enabled them to crush out many competitors. As a result of this same fierce competition they forced many other competitors to sell out and allow their plants to be dismantled. The government argued that, during the ten years preceding 1882, the defendants had bought out many competing concerns under such circumstances as indicated that the primary object sought was the depression of competition. For this reason it was held that the trust agreements of 1879 and 1882 were combinations in restraint of trade, for they tended to create a monopoly and were therefore illegal under the common law. This was true also of the Standard Oil Company of New Jersey, which was virtually the same as the previous trust except in name. As this combination persisted it became illegal after the passage of the Sherman Act in 1890. Again it was argued by the government that the decisions of the Supreme Court contain no basis for contentions that ownership of the stock of competing companies is invalid for railways but valid for trading and manufacturing companies. Not only does the Standard Oil Company violate section one of the Sherman Act which forbids combinations in restraint of trade, but it violates section two by monopolizing and attempting to monopolize the trade in petroleum and its products. It has extended its monopoly power by unfair methods: by price discrimination in local competition; by obtaining secret information, largely through the bribery of railway employees; and by forming bogus independent concerns principally to drive out competitors. The government attorneys stated

that they did not wish to appear to discourage enterprise in business; they were only contending against the creation of a monopoly by methods that make impossible the existence of independent concerns.

Shortly after the case was argued the court decided to postpone the decision and asked that the case be re-argued. This postponement was due in part to the death of Justice Brewer, the illness of Justice Moody and the recentness of the appointment of Justice Lurton; but it may also have indicated that the other six members of the court were not agreed as to the opinion which should be rendered, and on account of the importance of the case felt that at least five members should be in accord in the final decision. The case was to be reargued in January, 1911.

Besides a number of prosecutions by the State authorities, the United States government carried through an important suit against the Standard Oil Company of Indiana for violating the railway anti-rebate law. The company was originally indicted on 1524 counts for rebates on shipments from Whiting, Indiana, to Grand Junction and points beyond. On November 15, Judge McCall of the Federal Circuit Court at Jackson, Tenn., ruled that each settlement with the railway company, rather than each individual shipment of oil, constituted an offense. This reduced the number of counts to forty-six, involving a possible maximum fine of \$920,000. On the 17th, he instructed the jury to give a verdict of not guilty. The court held that the rate which the company had paid to points beyond Grand Junction was the legally filed rate.

The Vacuum Oil Company, an American organization generally understood to be a subsidiary of the Standard and engaged in the refinement of oil in Austria, was the cause of diplomatic negotiations in November and December. This company alleged that the Austrian government was treating it unfairly, with the result that it was forced to close its refineries. A special commercial adviser of the State Department at Washington proceeded to Vienna to bring about an adjustment. His efforts were furthered by a protest of the producers of crude oil who, fearing the loss of their largest customer, petitioned the government to withdraw its repressive measures against the American company. Late in December it was announced that this would be done.

**STANLEY, W. E.** An American public official, former governor of Kansas, died October 13, 1910. He was born in Ohio in 1848 and spent his boyhood in that State. In 1870 he removed to Jefferson county, Kansas, and in 1872 to Wichita. He was admitted to the bar in 1870 and in 1871-2 was county attorney for Jefferson county. From 1874 to 1880 he was county attorney for Sedgwick county. He declined an appointment to the Supreme Bench of the State. From 1889 to 1903 he was governor of the State. He was a member of the Commission to the Five Civilized Tribes in 1903-4.

**STANTON, THEODORE.** See. LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**STARS.** See ASTRONOMY.

**STATE BANK.** The report of the Comptroller of the Currency summarized the condition of 12,166 State Banks on June 30, 1910. They had \$435,822,000 capital and \$3,694,958,000 in aggregate resources. Their loans and discounts were \$2,406,466,000; bonds and other securities, \$303,

624,000; cash on hand, \$240,581,000; surplus and undivided profits, \$253,240,000; compared with 1909 there was an increase of \$261,000,000 in deposits. These banks were located as follows: New England States, 19; Eastern States, 476; Southern States, 3328; Middle Western States, 3924; Western States 3433; Pacific States, 958; Island possessions, 28. There were 1038 such banks in Missouri; 828 in Kansas; 680 in Oklahoma; 648 in Nebraska, and 632 in Minnesota. Kansas, Texas, Oklahoma, and Nebraska have State laws guaranteeing the deposits in State banks. The aggregate interest paid by State banks on deposits was \$31,786,000. They paid 2.62 per cent. on deposits subject to check; and 3.71 per cent. on savings deposits. They received 7.73 per cent. on time loans and 7.49 per cent. on demand loans.

*Bradstreet's* reported 19 State bank suspensions for the year, with liabilities of \$17,996,000 and assets of \$15,508,000. Since 1893 these liabilities have been exceeded only in 1907 and 1908 and have not been approached in any other year. The number of failures, however, has been greater in most years. Statistics collected by Professor George E. Barnett, and published by the National Monetary Commission, showed that the rate of failure is no higher for State than for National banks, though the latter pay a larger percentage of claims. This report attributed the growth of State banks to their more liberal regulations regarding loans and reserves than those enjoyed by National banks.

For the guaranty of deposits in State banks, see paragraphs under BANKS AND BANKING.

**STATE CIVIL SERVICE.** See CIVIL SERVICE.

**STAWELL, F. M.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**STEAM AND SAILING TONNAGE.** See SHIPPING.

**STEAM ENGINES.** During the year 1910 there was no notable advance in either the design or the size of reciprocating steam engines. Engineers, especially in Europe, were working along two separate lines of improvement, valve gears, and the use of superheated steam. It is especially in the latter that the greatest advance has been made. While economic conditions and the high price of fuel seem to be the impelling forces toward higher economy in Europe, yet it is to be regretted that not more attention is bestowed upon the subject in the United States, where in at least two instances locomotive designers favor the use of superheated steam, and have not hesitated to put their theories into practice.

**TURBINES.** To an increasing extent in competition with reciprocating steam engines, turbines have come into use even more rapidly than was noticeable in 1909; and for central station power plants are now standard practice. The size of the units continues to increase, and the largest thus far built, for the Commonwealth Edison Company of Chicago, is to drive a 20,000 kilowatt electric generator. (See DYNAMO ELECTRIC MACHINERY.) This machine is a five-stage Curtis turbine, taking steam at 135 pounds per square inch pressure, and will be operated condensing. Some engine builders, especially in Germany, have obtained good results by using two types of turbines in one machine: Curtis wheels in the high pressure part, utilizing one-third of the available energy of the steam, and Rateau wheels in the low pressure part, utilizing

two-thirds. In general, for stationary purposes, the Curtis turbine is considered superior, particularly in small sizes, as regards heat economy and low first cost; while in large sizes the Rateau system, especially in the low pressure part, gives a better heat economy.

**LOW PRESSURE TURBINES.** An increasing field of usefulness of the low pressure turbine, using exhaust steam, is in those plants where the fullest utilization of the heat energy in the steam has not been secured; and some recent tests have shown that the advantage to be gained by the addition of a low pressure turbine to reciprocating engines by taking their exhaust steam, is largely a question of the load-factor of the installation. Where this is greater than 35 per cent., a distinct gain results from adding a turbine, as was demonstrated at the 59th Street station of the Interborough Rapid Transit Company, New York. In that instance, the economy effected amounted to 25 per cent. For this kind of service it is customary to run an auxiliary live steam pipe, with a reducing valve in it, to the turbine, in order to obtain maximum output in times of the heaviest load on the station. The economy achieved by this use of low-pressure steam turbines for large power installations to utilize the exhaust steam, over reciprocating engines, first made prominent in 1907, had become generally appreciated during 1910, and it seemed likely that low pressure steam turbines would be employed in plants where steam hammers, rolling mill engines and other high pressure engines are employed, to utilize on exhaust steam.

**ROTARY ENGINES.** During the year several rotary engines were given laboratory tests which seemed to indicate their possibilities. A 20 horsepower Herriek rotary engine when tested at Stevens Institute developed a 20-40 brake horsepower on a consumption of 44-24 pounds of water per hour, while a similar engine of 100 horsepower operating with dry steam at 130 pounds pressure at the throttle was able to develop a brake horsepower of 128 with a consumption of water per hour of 32.4 pounds. Comparable with these records were those made by a Harriman rotary engine which developed 25.72 brake horsepower with a consumption of 31.02 pounds of steam per brake horsepower per hour.

In England, a rotary engine, invented by Messrs. Cherry and Bush, was brought out and has already attracted attention by its simplicity and economical use of steam. It consists of a rotor or drum in a concentric cylindrical chamber. The rotor is slotted for holding two vanes at diametrically opposite points on its rim. On both inner faces of the chamber or case are ring cams which engage with slots in the rotating vanes so that as the rotor turns, the vanes are drawn inward in order to pass the seal, and then pushed out again to take the steam pressure. The rotor is mounted on a shaft passing through stuffing boxes in either side of the case. The engine operates by virtue of the pressure of the steam, whereas a turbine works by reason of the velocity. The high efficiency claimed for the Cherry-Bush engine was obtained on test of one having a drum or cylinder  $4\frac{1}{4}$  inches in diameter and 29-16 inches wide, weighing 22 pounds. With steam at 87 pounds pressure it made 665 revolutions per minute, with an indicated horsepower of 2.02 and a brake horsepower equal to 2.01.

**SHIP PROPULSION.** There was a steady increase in the use of turbine engines for ship propulsion, and in a few vessels reciprocating engines with exhaust steam turbines were installed. In the navies of the world, turbines may be said to have become the standard, almost displacing engines of the reciprocating type. Some excellent results were obtained recently with Brown-Curtiss turbines on H. M. S. *Bristol*, which on her trial trip attained a speed of 26.84 knots an hour. On a 22 hour run, the speed was 24.06 knots, and 14,300 horsepower was developed on each shaft.

What is in the opinion of some marine engineers a backward step is the recently announced determination to install reciprocating engines in the new battleship *Texas* of the United States Navy; the reason given being that this type of engine is more economical than the turbine at cruising speeds. Whether the coal economy secured under the latter conditions will have been attained at the sacrifice of speed and general efficiency in time of war remains to be determined by the test of experience.

**STEAMSHIPS.** See SHIPBUILDING AND SHIPPING.

**STEAM TURBINE.** See STEAM ENGINES.

**STEBBING, E. P.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**STEBBINS, ROSWELL OTIS.** An American dentist and explorer, died May 24, 1910. He was born in Wetunka, Ala., 1855, and was educated in the schools of Willimantic, Conn., and at the New College of Dentistry. Besides keeping up active practice in his profession he early became interested in travel. In 1878 he explored the south fork of King's River in the Sierra Nevada mountains, and did considerable work along the same lines in Central America and Alaska. In 1894 he accompanied Dr. Frederick A. Cook to Greenland for the purpose of studying the teeth of the Esquimaux and he brought back many plaster of paris casts which he added to the collections in the United States National Medical Museum.

**STEDMAN, LAURA.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**STEELE, ROBERT WILBUR.** An American jurist, Chief Justice of the Supreme Court of Colorado, died October 12, 1910. He was born in Lebanon, Ohio, in 1857. His education was obtained from public schools, and in 1878-9 he studied in the law department of Columbian University. In 1881 he was admitted to the bar. From 1881 to 1885 he was clerk of the county court of Arapahoe county, Colorado. From 1892-95 he was district attorney of the second judicial district of Colorado. He was judge of Arapahoe county from 1895 to 1901. In the latter year he was made justice of the Supreme Court of the State. He was made Chief Justice in 1907.

**STEEL.** See IRON AND STEEL.

**STEEL CORPORATION, U. S.** See FINANCIAL REVIEW.

**STEEL INDUSTRIES, CONDITIONS OF LABOR IN THE.** See LABOR.

**STEEL PIPE SIPHON.** See AQUEDUCT.

**STEEL, PRESERVATION OF.** See CHEMISTRY.

**STEEVENS, WILLIAM ARNOLD.** An American philologist and biblical scholar, died January 2, 1910. He was born at Granville, O., in 1839, and graduated from Denison University in 1862. He studied later at the Rochester Theological Seminary and at the universities

of Harvard, Leipzig and Berlin. For thirty years prior to his death he occupied the chair of New Testament interpretation in the Rochester Theological Seminary. He was well known as a writer on philological and biblical subjects. Among his published works are the following: *Select Orations by Lysias*; *Commentary on the Epistles to the Thessalonians*; *Outline Handbook of the Life of Christ* (with Ernest D. Burton); *Harmony of the Gospels for Historical Study* (with Ernest D. Burton), and *Life of the Apostle Paul*.

**STELLAR PHOTOGRAPHY.** See ASTRONOMY.

**STELLERITE.** See MINERALOGY.

**STELLITE.** See CHEMISTRY, INDUSTRIAL, paragraph *Alloys*.

**STEPHENS, WINIFRED.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**STEREO-CHEMISTRY.** See CHEMISTRY.

**STETSON, AUGUSTA E.** See CHRISTIAN SCIENTISTS.

**STEVENS, JOHN AUSTIN.** An American author, died June 16, 1910. He was born in New York City in 1827, and graduated from Harvard College in 1846. He engaged in business in New York City, and from 1862 to 1868, was secretary of the New York Chamber of Commerce. He was also secretary of the Treasury Note Company, and was later librarian of the New York Historical Society. He founded and was for many years the editor of the *Magazine of American History*, and he founded and was the first president of the Society of the Sons of the Revolution and the Loyal National League. His interest in historical research led him to write a number of works dealing with incidents in the life of the country. Best known of these are his compilation of the *Colonial Records of the New York Chamber of Commerce from 1768 to 1783*, his account of the centennial celebration of the same body in 1868, *Memoir of George Gibbs, Resumption of Specie Payment, The Burgoyne Campaign* (1877), *The Expedition of Lafayette against Arnold, The French in Rhode Island* (1878-81), *The Life of Albert Gallatin* (1902), *The Physical Evolution of New York City in a Hundred Years, 1807-1907*, (1907), and *The Duke de Lauzun in France and America* (1907).

**STEVENSON, PAUL EVE.** An American writer, died December 20, 1910. He was born in New York City in 1868 and graduated from Columbia University in 1890. He was for a time connected with the commercial department of a ship designing firm. He was a lover of seafaring, and made several long voyages on sailing ships. He was the author of *A Deep Sea Voyage, By Way of Cape Horn, and The Race for the Emperor's Cup*.

**STEWART, B.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**STOCK EXCHANGE.** See FINANCIAL REVIEW.

**STOCK-RAISING. THE MARKET SUPPLY.** The high prices of feedstuffs for several years, and the consequent excessive marketing of livestock, caused a shortage of meat-producing animals on farms and ranches at the close of 1910. But there was no decrease in the number of slaughtered animals except in hogs. Cattle receipts at the five principal western markets in 1910 totaled about 8,350,000, or 100,000 more than in 1909. Sheep receipts aggregated 11,350,000, or 172,000 more than the previous year.

Hogs on the other hand decreased in numbers by about 3,000,000; the total number slaughtered was about 13,100,000. Kansas City showed the heaviest decrease. Both Chicago and Omaha made gains in sheep and cattle. As a result the prices of pork have been abnormally high. Strong prices have also ruled for horses and for good breeding animals in all classes of livestock. Many western ranges have been nearly depleted of cattle and the outlook at the close of the year was for high prices in the future, but the beef will be of higher quality, as inferior stock has gone to the shambles. Beef in the future will be more largely produced on smaller ranches and high-priced lands of the central West. There are many indications that the South may become an important source of the beef supply. Investigations in beef production in Alabama, which have been in progress for six years, indicate that with the eradication of the cattle tick stock-raising is likely to become an extensive and profitable business throughout the Southern States.

CANADA. As compared with 1909 the following changes have taken place in livestock statistics in Canada: The number of horses has increased by 3.31 per cent., milch cows 1.13 per cent., swine 2.11 per cent., and poultry 8.02 per cent.; but there has been a decrease of 1.55 per cent. in the number of sheep, and of 2.2 per cent. in cattle other than milch cows.

GREAT BRITAIN. In Great Britain there has been a slight decrease in horses and a large decrease in the number of sheep, though in some countries in England where long-wooled bucks are kept there has been a slight increase of sheep. There was a decrease in the number of cows, heifers and calves, but in England an increase in other cattle. The number of pigs in Scotland increased slightly, but in England and Wales there was a decrease in swine other than brood sows. These fluctuations in Canada and Great Britain are due to the rise in meat prices, and are dependent to a large extent upon the change which has recently taken place in the livestock situation in the United States. This influence has also extended to France, Germany, and other countries of central Europe and steps have been taken to encourage livestock production.

SWITZERLAND. In Switzerland, for instance, the annual government appropriation is £16,000 to encourage the cattle industry, and £8000 for horse breeding. According to the figures of the Swiss Peasants' Union 33.27 per cent. of the income of the Swiss peasant is derived from the sale of milk and its products, 20.41 per cent. from slaughtered cattle, 13.53 per cent. from other cattle, and 7.32 per cent. from pork.

The livestock industry in European and Asiatic Russia is assuming enormous proportions, and the annual increase is destined to continue for many years, as there are large areas which are capable of maintaining herds of livestock on which few or no animals are now kept. According to the latest official figures there were in the Russian Empire 28,723,000 horses, 42,031,000 cattle, 57,466,000 sheep and goats, and 12,436,000 pigs.

AUSTRALIA. At the close of the last fiscal year (June 30, 1910) the livestock in the Commonwealth of Australia showed increases as compared with the close of the previous year of 4,624,615 sheep, 491,209 cattle, 95,160 horses, and of 68,143 pigs, the total now

being 2,022,322 horses, 11,038,888 cattle, 91,667,881 sheep, and 763,832 pigs.

FORMOSA. Recent statistics of livestock in Formosa are of interest as showing the kinds of animals kept there. A recent report states that at present there are 162,985 Formosan oxen, 295,474 water buffalo, 1,268,261 hogs, 142,568 goats, 153 horses, 1007 European oxen, and 556 milch cows.

BREEDING—REGISTRATION, ETC. The herd of zebus imported from India to Texas in 1906 and bred to Hereford and grade stock, has given satisfactory results. The crossbred offspring have been kept in tick-infected pastures, and have inherited the immunity to Texas fever of the original stock. The Secretary of Agriculture has issued new regulations, to become effective after January 1, 1911, governing the certification of recognized breeds and pure-bred animals imported to the United States for breeding purposes, as these animals are imported free. Hereafter registered certificates of the foreign herd books will be required instead of the certificate of American herd books as has been the custom. The growing demand for well-bred horses, in spite of the abundance of grades, scrubs, and inferior stock, has led to various means for the improvement of American-bred horses. One of the most efficient means for that purpose has been the enactment of State stallion registration laws. The movement was started in Wisconsin, where under the influence of the station officials a law was passed in 1905 by which unsound and unfit stallions were barred from public service. The law was also designed to prevent fraud concerning the age, breeding, and other qualities. Since the law was passed the number of horses in that State has increased by 66,068 head, and their average value has increased \$15.35 per head. This increase was due, at least in part, to the influence of the stallion law. Since 1906 many other States have followed the lead of Wisconsin and have enacted similar laws. In August a National Association of Stallion Registration Boards was organized in order to cooperate in this matter. In December the American Suffolk Horse Association decided to incorporate, as the organization had hitherto been purely voluntary. Success has rewarded the efforts of the United States Army to improve the supply of horses by purchasing horses and mules unbroken and breaking them while at special remount stations. This has reduced the first cost of the stock and will increase the average length of life by accustoming the animals to army rations at an early age. They are also more efficient and reliable when broken to army ways when young. A plan has been proposed to have the United States government purchase stallions and breed army horses in cooperation with the Department of Agriculture.

The union of the Southwest Poland-China Record and the American Poland-China Record associations was a change which is destined to promote the interests of breeders of pure-bred swine.

IMPROVED METHOD OF TRANSPORTATION. A much-needed improvement in the transportation of livestock was brought about when the Pennsylvania Railroad adopted a new and improved type of stock car, which is so constructed as to insure greater comfort to the cattle during transport, and to reduce the number of damage claims the railroads are called upon to settle.

An association of feed control officials was organized during the year. The object of this association is to promote uniformity in State legislation relating to the manufacture, sale, and distribution of commercial feedstuffs. The membership consists of the State and Federal officials who are charged by law with the examination of these products or the execution of laws relating to their sale.

**SHEEP-RAISING.** The *Annual Wool Review* places the number of sheep in the United States fit for shearing on April 1, 1910, at 41,999,500, a decrease of 293,705 from 1909. The decrease has occurred in the far Western States, as there was an actual gain in the New England, Eastern and middle Western States. The year has been an unfavorable one for both wool growers and wool manufacturers in the United States. The total wool production, including pulled wool, was 321,362,750 pounds, or 6,747,999 pounds less than in 1909. The total value of the product was estimated at \$72,489,838. The tendency from fine to coarse wools continued to affect the wool growers, but to a less extent than in some former years. The conditions of the sheep and wool industry in this country have been reflected to some extent in Australia and Argentina, though to a less degree, as in those countries there are still new ranges to be taken up. There are also opportunities for growth in Africa and in Asia.

The total imports of wool showed a decrease in Class I and an increase in Classes II and III. There were 106,713,750 pounds of Class I imported during the fiscal year ending June 30, 1910, as against 138,143,968 pounds in 1909. Of this amount 68,094,059 pounds came from Australasia, a decrease of 11,322,717 pounds; 27,331,168 pounds from Argentina, a decrease of 23,270,252 pounds, and 8,768,627 pounds from Uruguay, an increase of 3,008,775 pounds. The gross imports of wool amounted to 263,939,584 pounds. The wool clip in Australia was above the average. According to the review of Dalgety & Co., the flocks in Australia and New Zealand increased during the year by 6,179,614 head, the total now being 115,525,581 head, a higher number than at any period for sixteen years. The sheep have improved in quality as well as in numbers. The oversea shipments amounted to 1,921,705 bales from Australia, and 512,938 bales from New Zealand, an increase of 146,539 bales. The total weight of the shipments was 816,881,665 pounds, valued at £33,128,496.

The prices for all grades ruled high and at a very uniform level throughout the year. The character of the clip was due to careful breeding and attention to the flocks. The Vermont blood, introduced a few years ago to thicken the fleece, has had its effect, while the accompanying evils of shortness of staple and excess of grease have been bred out. Australia has now become the principle wool producing country of the world, and manufacturers of other countries are sending buyers to Australia instead of London in order to secure a satisfactory share of the Australian clip. Sheep breeders of South Africa, Argentina, and Uruguay are buying stud sheep in Australia. Wool producers in other countries are following Australian methods of preparing the clip for market.

Wool production decreased in Argentina by about 20 per cent. in 1910, but increased in

Uruguay and South Africa. In Russia large estates upon which large herds of sheep were kept are being cut up into small holdings and for several years there has been a steady reduction in the number of sheep. The Japanese government is attempting to build up the sheep industry and the past year has sent a special envoy to the United States to collect information on the best methods of handling sheep and to interest American flock owners in the possibilities of Japan as a purchaser of foundation stock. African woolless sheep have been imported to Porto Rico to encourage the production of mutton. Peru has recently taken some interest in the sheep industry and sheep have been imported from Patagonia for cross-breeding.

The presence of twine and vegetable fibres in wool has been the cause of considerable loss. During the past twelve months there has been a noticeable improvement in the packing of wools offered in the London market. Processes have been invented which prevent the twine used in packing from entering the wool. In the United States some twines made of paper have recently been secured which do not injure the wool, as they are non-fibrous and if particles fall off in the wool they are easily dissolved.

Among the principal books on livestock published during the year were the following: Wilson, *Evolution of British Cattle*; Macdonald and Sinclair, *History of Hereford Cattle*; Oettinger, *Horsebreeding in Theory and Practice*; Jordan, *The Gait of the American Trotter and Pacer*; Wright, *Wool Growing and the Tariff*; Dietrich, *Swine*; Ellenberger and Scheunert, *Lehrbuch der vergleichenden Physiologie der Haussäugetiere*; Henry, revised edition of *Feeds and Feeding*.

**STODDART, J. T.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**STOKES, A.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**STOKES, M.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**STONE ARCH BRIDGES.** See BRIDGES.

**STONE, CHARLES FRANCIS.** An American jurist, died July 25, 1910. He was born at Cabot, N. H., in 1843, and graduated at Middlebury College in 1869. He was admitted to the bar in 1872 and began the practice of law at Laconia. He took an active interest in politics and was chairman of the Democratic State Committee from 1882 to 1890. In 1883-4 and 1887-8 he was a member of the State legislature. He was a candidate for Congress in 1892. From 1894 to 1898 he was naval officer of the port of Boston and was Democratic candidate for governor of New Hampshire in 1898. He received the full party vote for the United States Senate in the legislature of 1898-99. In 1901 he was appointed judge of the superior court of New Hampshire.

**STORAGE BATTERIES.** See ELECTRIC STORAGE BATTERIES.

**STOVAIN.** See ANÆSTHESIA.

**STRAITS SETTLEMENTS.** A British crown colony in Malaysia, composed as shown in table at top of next page (area in square miles, population 1901).

Chinese and Malays form the bulk of the population. The city of Singapore is the capital of the colony; it is a port of call and is strongly defended. There were in 1908 215

	Area	Pop	Capital
Singapore .....	206	228,555	Singapore
Penang .....	107	128,830	Georgetown
Malacca .....	659	95,487	Malacca
Province Wellesley..	288	115,264	Georgetown
The Dindings .....	260	4,113	Lumut
Labuan .....	31	8,286	Victoria
Christmas Island....	56	12,000	Singapore
Cocos Islands.....	9	700	Singapore
Total .....	1,646	572,249	

schools of all kinds, with 23,248 pupils. The products and exports are shown in the details of trade below. The total foreign trade for three years is given in Straits Settlements dollars (1 dollar = 56.7758½ cents), the inter-settlement trade being given separately:

	1907	1908	1909
Imports .....	350,570,202	316,395,939	313,358,427
Int. settlement	13,921,580	14,889,118	14,500,548
Exports .....	305,301,907	273,818,124	281,183,021
Int. settlement	14,263,644	13,979,316	13,073,446

The aggregate trade (including inter-settlement) of the separate settlements in 1908 was as follows: Singapore, 422,071,477 dollars (tin export 33,477,542); Penang, 185,882,347 (tin export, 38,255,694); Malacca, 8,853,068 (tapioca export, 1,473,423); Labuan, 2,275,605. The principal articles of the total foreign trade, with value in thousands of pounds sterling, are given for 1908:

Imports	1000 £	Exports	1000 £
Rice .....	4,348	Tin .....	8,369
Cottons .....	1,374	Spices .....	1,524
Opium .....	1,069	Gums .....	1,463
Fish .....	913	Copra .....	1,073
Coal .....	876	Gambier .....	528
Tobacco .....	748	Rattans .....	457
Sugar .....	574	Hides .....	333
Machinery .....	554	Pineapples .....	310
Petroleum .....	365	Tapioca .....	313

Merchant vessels entered (1908), 9257, of 10,891,954 tons; native craft, 17,747, of 723,536. Merchant vessels cleared, 9238, of 10,858,291 tons; native craft, 17,882, of 731,900. A railway connects Singapore with Kranji, whence ferries are run to Johore. The Perak State Railway runs from Parit Buntar in Krian to Kwala Prai in Province Wellesley, whence ferries connect with Penang; and a line extends from Malacca to Tampin in Negri Sembilan. These lines connect with the Federated Malay States Railway system. Total railway Mileage, 567. Revenue (1908), 8,969,015 dollars; expenditure, 9,837,624. Debt, December 31, 1908, 3,000,000 dollars. Governor and commander-in-chief (1910), Sir John Anderson. Resident councillor of Penang, R. N. Bland; of Malacca, W. Evans; resident at Labuan, M. S. H. McArthur.

**STRATIGRAPHY.** See GEOLOGY.

**STRAW ITCH.** See INSECTS AND THE PROPAGATION OF DISEASE.

**STREET CLEANING.** No branch of the municipal service affords a better opportunity for increased efficiency at reduced cost than does street cleaning. The operations involved have been standardized to a relatively slight extent and there are few reliable data for use in determining what methods will give the largest yardage of the cleanest streets at the lowest cost. Two or three years ago a special board of

engineers made an extended study and report on street cleaning matters in New York City. One conclusion reached was that washing pavements with hand hose gave better results at less cost than washing by machines, provided flat nozzles held at the proper angle were used. The conclusion was based partly on observations and partly on estimates. In August, 1910, the Street Cleaning Department of New York City made comparative tests of hand and machine washing. It was concluded that three men with hose attached to street hydrants could do about as much in one day as a "Sanitary" washing machine and 75 per cent. as much as a "Connolly" washing machine, one man and two horses being required for each machine. The fire hose required three to five times as much water per unit area cleaned as did the machines. The inference to be drawn from the figures and conclusions given out by the department seemed to be that machine washing costs less per unit area than hand washing, but no figures were reported for wages of men, rental or capital charges on the machines, nor for cost of water; and nothing was reported as to whether one method gave streets as clean as did the other method. More complete data for New York City compared with equally complete data for other cities, would be required to settle the question of relative cleansing and cost. The same general lack is characteristic of most street cleaning information and suggests a need for reform.

**STREET PAVING.** See PAVEMENTS AND ROADS.

**STREET RAILWAYS.** See STRIKES AND LOCKOUTS.

**STRIKES AND LOCKOUTS.** The year 1910 was very notable for the great number of labor disputes both in the United States and in various European countries. One of the undoubted reasons for this was the fall of wages in 1908 and 1909 and the wide-spread demand among workers for an increase in pay as a result of the return of more prosperous industrial conditions. The *New York Labor Bulletin* reported more labor disputes than in any recent year although the number of employes per dispute was unusually small. In the United States an unusual number of disputes were adjusted by conciliatory methods. This was especially true of railways, telegraphs, and building operations. (See ARBITRATION AND CONCILIATION, INDUSTRIAL). Nevertheless public conveniences and general business were sufficiently disturbed by the interruption of public utilities to increase considerably the demand for the perfection of means of preventing trade wars in all cases where the public is the chief loser. Only the strikes and lockouts of greatest interest are noted here.

#### UNITED STATES

**SHIRT-WAIST MAKERS' STRIKE, New York.** The great strike of the women shirt-waist makers which had begun in New York City late in November, 1909, and which involved about forty thousand young women, mostly Jewish and Italian, was not entirely completed at the beginning of the year. Not more than one-fourth of the strikers had succeeded in winning their demands by that time and returned to work. The others were still carrying on a bitter struggle with their employers. Numerous investigations and attempts at settlement were made early in the year. These investigations showed

that the workers were employed upon rush work for about four months late in the winter and spring, and that they had moderate work for about five months in the fall and early winter and slack work during the summer; that the workers were divided into three classes of whom the beginners and apprentices comprise thirty per cent., the average workers forty-five to fifty per cent., and expert workers fifteen to twenty per cent. Dr. Woods Hutchinson (see the SURVEY) computed that the average operators when employed earned from ten to twelve dollars per week, so that the very low wages were limited to the beginners, who were sub-contracted. In addition to these low wages causes of discontent seem to have been the continual fault-finding and discourtesy of employers; the fining system which deducted from wages for many somewhat imaginary offenses; bad air, bad light, over-crowding, refusal of the use of elevators and the locking of doors during rush periods. Perhaps the most notable feature of this great strike was the heroism and devotion to a common cause of thousands of immigrant young women of various nationalities and this in the face of great suffering and privation. Many charges of injustice were made against the police. By the middle of February practically all the employers had come to agreement with their workers. The union membership had reached over twenty-one thousand and included the employes of four hundred shops. All of these had agreed to the closed shop; had acceded to regulations making sub-contracting relatively harmless; and had agreed to adjust differences through committees from the shop and the union. See INJUNCTION.

**Philadelphia.** The sympathetic strike among the shirt-waist workers in Philadelphia which had begun on December 20, 1909, and which involved 7000 workers was settled on February 6. One notable difference between the situation in New York and Philadelphia was the existence of an association in Philadelphia including all the seventy-five manufacturers. While the Philadelphia strike aroused less public support it was well organized and ably conducted by the Women's Trade Union League. The strikers demanded the closed shop, better and more uniform wages, modification or elimination of the contract system, better sanitation, and a more reasonable arrangement of hours and over-time. The same charges of unfair treatment of strikers were made against the Philadelphia police that were frequent in New York. By the agreement, which continues until May, 1911, the employers conceded a permanent arbitration board and the strikers gave up the union shop; union strikers were to be re-employed without discrimination; the wage-scale in each shop to be arranged by a committee of three; no charge to be made for needles or the ordinary wear and tear of machines; the number of hours per week to be fifty-two and one-half with no work on Saturday after one P. M. Nothing was said about sub-contracting.

**CLOAKMAKERS' STRIKE.** The greatest American strike of the year and probably the greatest ever carried on in a single community in the United States, as regards the number of workers and capital involved, was the strike of the cloak-makers of New York City. The capital involved approximated sixty million dollars and the annual product of the industry is even more. This strike, beginning early in July and continuing

until September 2, had for its chief purpose the establishment of a new trade agreement involving the complete recognition of the Cloak and Skirt-Makers' and the International Ladies' Garment-Makers' unions, though minor questions also were involved. Among the latter were the following: The practice of charging employes for electricity and materials; work in tenement houses; hours of overtime and night work; work and pay on holidays and Sundays; sub-contracting; rates of wages; sanitary conditions; and discrimination against union men. The total number of strikers was variously estimated at from 70,000 to 85,000. Representatives from the Civic Federation, of whom Mr. Louis D. Brandeis was foremost, and from the American Federation of Labor used their influence to bring about a settlement. Late in August both sides accepted and then rejected in turn an agreement which involved preference for union men. On August 12, Acting Mayor Mitchel had ordered the police to grant strikers the privilege of picketing the cloakmakers' shops. Later, Supreme Court Justice Goff, at the instance of the Cloak, Suit and Skirt Manufacturers' Protective Association, issued an injunction restraining the strikers from picketing, on the ground that the main purpose of the strike, the closed shops, was illegal. (See INJUNCTION.) Thereupon, on August 30, the Acting Mayor reversed his previous order. Through the efforts of Mr. Brandeis and others a conference between representatives of the strikers and the manufacturers was secured and resulted in a very unusual agreement. The unique feature of this agreement was its acceptance of the preferential union shop. It was agreed by the manufacturers to maintain a union shop, that is, not a closed shop but a shop where union standards are maintained and where preference is given to union men. In addition the employers agreed to cease charges for electricity, to establish a fifty-hour week and a nine-hour day, to limit over-time work and to pay for same at double rates. A minimum wage-scale was drawn up for time workers. There was also established a sanitary board, an arbitration board, and a board to consider minor grievances. The first two of these boards were to include representatives of the union, of the employers and of the public. It was agreed that no strike or lockout should be entered upon until the questions involved should have been submitted to the arbitration committee. There was considerable delay in opening the shops in spite of the satisfactory character of this agreement because the manufacturers claimed that the piece workers were demanding exorbitant rates.

**CHICAGO GARMENT WORKERS' STRIKE.** A great strike of garment workers in Chicago, involving 40,000 persons, began in October and continued to the close of the year. The sole object of the strike was said to be recognition of the union. No great amount of disorder resulted, though numerous small riots, in which two persons were killed, occurred. An apparent settlement was reached in November, due largely to the efforts of Jane Addams of Hull House and national President Ricket of the Garment Makers' Union. This, as also the effort at conciliation by a committee of the Association of Commerce, proved unsuccessful. On December 19 it was announced that the contest had settled down to one of endurance.

**LABOR CONDITIONS OF RAILWAYS.** Early in

the year there were very many signs of unrest among the railway workers of the country. The strike of the railroad switchmen of the Northwest, which had begun on November 30, was still in progress, and early in January it appeared probable that many thousands of railway men would go on strike in sympathy. However, no actual break occurred. About 10,000 other switchmen put in similar demands. In addition trainmen and conductors to the number of almost 150,000 on the roads east of Chicago and north of the Chesapeake and Ohio Railway presented a demand for higher wages. Similar demands were made by 25,000 firemen and engineers. These were only a few instances of numerous demands of like nature made by all groups of railway men throughout the East and Middle West. The fundamental cause of this unrest was said to be the higher cost of living. The men had not pressed demands for better pay after the crisis of 1907 and, therefore, held that the railways should now share the increased earnings due to the return of prosperity. The railways, on the other hand, contended that their ability to pay higher wages was limited by the public control of rates. All of these prospective strikes were prevented by conferences between railway managers and representatives of employees. In practically all cases wages were advanced. Early in the summer another wave of discontent swept over the railway employees. A dispute on the Southeastern roads, arbitrated under the Erdman act, resulted in advances of from 12 to 30 per cent. in wages. A strike by Missouri Pacific telegraphers was similarly arbitrated; and with only a few minor strikes, the wages of 25,000 locomotive engineers on 61 roads and thousands of other railway employees, both organized and unorganized, were advanced. A strike of Missouri Pacific machinists and metal-workers, begun May 2 and attended by a sympathetic strike beginning October 21, was ended December 19 on terms offered by the company May 1. This almost universal disquietude among railway men occasioned wide discussion of means of preventing railway strikes. It was pointed out by many writers that the interest of the public in the continuance of railway service has become so very great that the prevention of strikes is absolutely essential to public welfare. The result of this discussion was the development of considerable opinion favorable to some laws providing that railway strikes should not be ordered until grievances have been submitted to some committee of arbitration. It was pointed out that the Interstate Commerce Commission having been given control of railway rates should logically be given control of the wages of railway employees.

**COLUMBUS STREET RAILWAY STRIKE.** The most bitter street railway strike of the year was that at Columbus, Ohio, begun in July and continuing through to September. The violence in the city amounted almost to a state of anarchy by the last of July, with the result that Governor Harmon ordered five regiments of the Ohio national guard to the scene. The soldiers to the number of 3300, involving the State in an expenditure of more than \$10,000 per day, succeeded in restoring order. They were, however, withdrawn after a few days, the expectation being that the mayor and the police force would be able to cope with the situation. The rioting was, however, resumed, especially at night.

Moreover the police force was demoralized by the refusal of about forty of its members to fire on the strikers. The national guard were again placed in charge. The company had introduced a considerable number of rough strike-breakers, with the result that the violence in this strike was marked by an unusual amount of shooting and destruction of property. Not only was the entire community subjected to great financial loss and inconvenience but various portions of the city were terrorized at various times. The cost to the State was \$250,000. By the first of September the union expressed its willingness to arbitrate, but the street railway manager declined the proposition. The men finally gave in and sought re-employment.

**PHILADELPHIA STREET RAILWAY STRIKE.** The strike of the Philadelphia Street Railway employees in June, 1909, was settled largely by political pressure and resulted in an agreement for only one year. After that strike a new union was formed among the car men. Leaders of the old union claimed that this new union was formed at the instigation of the company. Although the company denied any connection with the new union, bad feeling developed. In January, 1910, negotiation was begun to establish a new agreement. While this was in progress the company discharged 173 men, claiming that this many cases had accumulated during a period of several weeks. The union leaders claimed that this was an effort to weaken the union and at the same time force a strike. They consequently ordered a strike for the recognition of the union. The transportation of the city was immediately paralyzed, from four to six thousand men going out February 19. The regular police force of the city proved weak and inefficient. After several days of rioting and disorder, during which several persons were killed, hundreds were injured, much property destroyed and the entire community put to great loss and inconvenience, about two hundred of the State's mounted constabulary were brought into the city and at once restored order. In the last week of February the Central Labor Union ordered a general strike. It was claimed that about sixty thousand men in seventy-five different trades obeyed the order. This added immensely to the confusion and loss, but the strike had been lost from the time the State police restored order. The company soon had a large proportion of its cars running. The result was that the men returned to work April 17 on conditions proposed by the company several weeks earlier. These were that all men should be taken back; that the 173 discharged men should have their cases settled by arbitration; that the men should receive a wage of twenty-three cents per hour with the increase of one-half cent per hour every six months until twenty-five cents was reached; and that there should be no discrimination by employers or intimidation by unions on account of membership or non-membership in a union. The report of the company in September estimated its losses from the strike at \$1,500,000 in fares and \$300,000 in extra expense.

**NEW YORK EXPRESSMEN'S STRIKE.** A strike of the drivers and helpers employed by the express companies in and about New York City was begun about the first of November. It was led by the International Brotherhood of Teamsters, and had as its objects better wages and shorter hours for some few employees, although

the demand for the recognition of the union was also a factor and most of the strikers were out in sympathy. Great quantities of express matter of every description, much of it perishable, quickly accumulated in all express offices and at the railway depots. Efforts by the companies to break the strike by employing new men led to much rioting in spite of the efforts of the police to preserve order. It was later discovered that these new drivers were employed contrary to a city ordinance requiring all such to be licensed; consequently not only was police protection withdrawn from the strike-breakers but the latter were arrested and their wagons taken to the city pound. Meanwhile Mayor Gaynor had succeeded in inducing the drivers to return on condition that differences should be settled by conference between each company and its men, and that the companies should not discriminate against men for belonging to a union. The companies at first refused to accept this latter condition. But vigorous expressions of opinions from the mayor and the Merchant's Association induced them to give in on the tenth of December, though they reserved the right to refuse to take back any men who were guilty of acts of violence. Any new agreements were to take effect December first. There was some delay in securing the assent of the strikers in Jersey City, but this was done in time for leaders to order all back to work Monday the fourteenth.

Meanwhile the express companies had applied for an injunction against the city authorities restraining them from enforcing the ordinance requiring the licensing of express drivers and wagons. Their ground was that the ordinance was invalid, being an interference with interstate commerce. This contention was not sustained by the court.

While the express strike was at its height, drivers for coal and ice-cream companies and the taxicab chauffeurs went out in sympathy. The latter made a determined demand for the recognition of the union, and remained out after the express strike was settled. Numerous efforts on the part of Mayor Gaynor to effect a settlement were finally successful on December 5. The employers agreed not to discriminate against union men. Though this proposition was at first rejected by the strikers, it was finally accepted on the ground that it amounted to a partial recognition of the union.

**WOMEN WEAVERS' STRIKE, ROXBURY.** There was a unique strike of women weavers in the carpet factories of Roxbury, Mass., about the middle of March. Many of them had worked many years in the factory and were children of a previous generation of workers. The immediate cause of the strike was the statement by the company that wages were to be cut 12½ per cent. and that the mills were to be closed for two weeks. Ill feeling had developed as a result of the passage of ownership of the mills into the control of absentee stockholders following the deaths of the originators and a consequent disappearance of long established personal relations between employers and employees. After twelve weeks the strike resulted in a complete victory for the strikers. Not only was the old wage-scale restored but the principle of collective bargaining was conceded.

**SUGAR REFINERS' STRIKE, WILLIAMSBURG.** A strike of over two thousand laborers, mostly Poles and Lithuanians, in the Williamsburg (N.

Y.) refineries of the American Sugar Refinery Company, late in July, was attended by considerable violence and the loss of several lives. The strikers demanded an increase from eighteen to twenty cents per hour in wages. The wives of the strikers participated in the disturbances. Efforts to settle the strike by Fathers Farrell and Yacka, the latter a Polish priest, were not successful. They induced the company to agree to reopen the plants and to meet a committee of the strikers to adjust grievances. This caused temporary jubilation among the strikers and their wives, but the men were later induced by a labor leader to stand firm for twenty cents an hour. The company broke the strike by bringing more than 1500 workers to the plants by means of boats.

**COAL STRIKES.** Strikes occurred in the anthracite coal region at Carbondale, Avoca, and other points in the anthracite coal fields of eastern Pennsylvania; and at Irwin and other points in Westmoreland county, in the western part of the State. In both cases State constabulary were needed to assist local police in preserving order. In Westmoreland county the contest, begun in March, was still on at the end of the year. On December 19, President Samuel Gompers, following a resolution of the American Federation of Labor, called upon Governor Stuart to investigate conditions in the Irwin field. At one time there were about 17,000 strikers in Westmoreland county; by late fall about 10,000 of these had gone elsewhere, some had returned to work, and the remaining 5000 were keeping up the fight. A state bordering on civil war prevailed in many sections during the greater part of the year, many being killed. The causes of the trouble were an accumulation of grievances, the introduction of a new powder, and efforts of the United Mine Workers to organize the miners.

**LABOR TROUBLES IN LOS ANGELES.** At Los Angeles a contest was carried on throughout the year between trade unions and employers opposed to the unionization of the city. In October the Los Angeles Times building was dynamited and 21 employees killed; the crime was attributed to trade unionists. A bomb explosion on December 25 at an iron works, where a strike for the union shop had been in progress some months, was also attributed to the unions.

**BRICKLAYERS' STRIKE AND LOCKOUT.** A strike of bricklayers belonging to the Bricklayers and Masons' International Union was begun in July on the contracts of Nesbit & Company in Newark. The cause was the employment by the firm of plasterers not recognized as union men by the bricklayers. The Mason Builders' Association then ordered a lockout of about 10,000 bricklayers employed by its members in greater New York. The union in turn called for sympathetic strikes on the contracts of these firms throughout the country. About 100,000 men in New York, Chicago, St. Louis, Kansas City, San Francisco, and elsewhere were out. The dispute terminated on October 6 with the extension of union rules to all cities and towns not covered by the previous trade agreement. For the results of this agreement, which had prevented strikes for 15 years, see **ARBITRATION AND CONCILIATION, INDUSTRIAL.**

**CIGAR MAKERS' STRIKE.** About July 1, a most bitter contest began between the Cigar Makers' Union and the Cigar Manufacturers' Association of Tampa, Fla. A strike had been called because

of the alleged discrimination against union men; this was followed by a lockout of from 8000 to 12,000 men by the associated employers. Strike breakers from Cuba were forced to return under the Alien Contract Labor Law. There were several fatal assaults attributed to union men; but, on the other hand, a Citizen's Committee used a show of armed force in closing the Labor Temple and in forcing trade unionists to leave the city. The dispute which had become a most determined fight for the closed shop was not settled at the end of the year. The strikers were being assisted by cigar makers' unions throughout the country.

#### FOREIGN COUNTRIES

**CANADA.** By far the most important Canadian strike of the year was that of the conductors and trainmen on the Grand Trunk railway which began on July 18. The chief demand of the men was an increase in wages. Almost immediately after the outbreak of the strike numerous scenes of violence and disorder occurred at various points along the route. This disorder and lawlessness resulted in bloodshed, incendiarism, and dynamiting, necessitating in some instances the calling out of troops. As a result of government intervention the strike was brought to a close on August 2. The settlement was a compromise favorable to the strikers. The men secured an advance of wages approximating 18 per cent., which was to date from May 1, 1910, thus being retro-active. Moreover, it was agreed by the railway to standardize pay and rules on the same basis as that recently conceded by the Canadian Pacific Railway, such standardization to become effective January 1, 1912. In the case of the Central Vermont Railroad which was also affected by the strike this standardization is to be that of the Rutland Railway. The company did not agree to restore immediately strikers to their former positions but to do so only as soon as possible, it being understood that those engaged in violence, coercion, or intimidation would not be taken back at all.

**GREAT BRITAIN.** The most notable English labor disturbance was the lockout of the Lancashire cotton district. From May until late July this industry was disturbed by a dispute over a 5 per cent. reduction of wages. Settlement provided for no reduction before 1915. In June a workers' union known as the Oldham Cardroom Association voted against cleaning machinery with cotton waste. One of its members, George Howe, employed in the Fern Mill, carried out this vote. He was discharged and the association went on strike. This continued until September 19, when the Employers' Federation announced that, unless the Fern Mill employes returned to work by October 1, a general lockout would be declared. Efforts at settlement failed because the union insisted on the reinstatement of Howe, and this the employers refused to do. Consequently 150,000 workers were locked out. Attempt was made by George R. Askwith, K. C., of the National Board of Trade, to settle the dispute by means of joint conferences of representatives of employers and workers. He at length succeeded, work being resumed October 17. The importance of the lockout was due to the fact that more than 40,000,000 spindles were stopped. As the supply of yarn was already low a continuance of the lockout would have involved stoppage of the

work of the weavers. The coal trade and small shopkeepers in the cotton towns suffered severely. The resources of the strikers' union were very great and lockout benefits amounting to \$200,000 a week were paid.

As the result of the transfer of a head shunter from one yard to another a strike was begun on the Northeastern Railway in July. The real cause of the strike was the accumulation of many petty grievances during the preceding months. Sympathetic strikes on the part of other railway men increased the number of strikers to 60,000 by the fourth day. The strike was entirely unauthorized, many unions breaking their trade agreements. The company was alarmed by the size of the protest and the strikers were disconcerted because the Amalgamated Society of Railway Servants refused to recognize them. Work was resumed July 22, on terms proposed by the company. The men received full pay even for the strike days; no men were to be proceeded against for broken agreements; no black marks were to be made in the records of the strikers; petty grievances were to be adjusted; and the case of the transferred shunter was to be taken up with two fellow workers.

A state of unrest prevailed throughout the year in the coal-mining regions. This was due in the main to the introduction of the Eight-Hours Act, which raised many points not settled by existing trade agreements. There were strikes and some rioting in the Durham and Northumberland districts during the early months, and small disturbances throughout the year in South Wales with a serious strike and much anarchy during the fall. Three chief questions were involved: whether an extra hour per week should be worked in addition to the 8 hours per day; whether wages should be advanced by amounts ranging from 2½ to 5 per cent.; and whether miners working on thin veins or under conditions where a large output is impossible should receive a stipulated minimum wage, regardless of their output. The most destructive rioting occurred in the Rhondda valley in Wales in November, at which time about 30,000 miners were out; some of these were being supported by the Miners' Federation; others had struck illegally. The latter became desperate and London police and special troops were needed to preserve order. See **GREAT BRITAIN**, paragraphs on *History*.

There was a sudden strike of caulkers and hole-borers in the ship building trades in August; the men returned to work in order to avoid a threatened lockout. As a result of a strike of boilermakers early in September, in violation of a trade agreement to submit all matters of dispute to arbitration, the Ship Building Employers' Association instituted a lockout. About 48,000 workmen were affected, the entire industry on the northeast coast being crippled. The employers demanded that the men be fined for violating the trade agreements; this demand was abandoned. Through the intervention of the Board of Trade, settlement was reached on December 14; the Boilermakers' Society agreed to guarantee the fulfillment of the agreement in the future, and an advance of wages was conceded. The total loss of wages to the boilermakers and others thrown out was about \$4,000,000.

The first attempt to apply the new Trades Boards Act (see **LABOR LEGISLATION**) authorizing the formation of a Board in any trade to

determine minimum wages and standards, was made in connection with the women chainmakers at Cradley Heath. These women were said to work twelve hours per day at their crude forges in their own houses hammering out heavy chains. They were paid from one and one-half to three pence per hour or five to six shillings per week. On August 22 a Wage Board fixed three and one-half pence per hour as the minimum wage. The Act allowed an extension of six months before carrying out the finding of the board; a number of women signed unawares an agreement to that effect. They later discovered the significance of the paper they had signed and went on strike. The Women's Trade Union League and the Trade Union Federation took up their cause and paid strike benefits of five shillings per week. Altogether about five hundred of the nine hundred women chainmakers were out. The strike was ended about October 20 by the agreement of all manufacturers and middlemen to pay the wage fixed by the Trade Board.

**GERMANY.** There were numerous strikes and lockouts, the two most important being described below. The most serious rioting of the year occurred in Berlin late in September as the result of the employment of blackleg coal drivers. Almost 300 persons were injured and several killed. A big lockout in the building trades beginning in April, involving 250,000 men, was settled by arbitration. The arbitrators were a Government Councillor, the Mayor of Dresden, and the President of the Munich Industrial Court. Their recommendations, published May 3, were at once accepted by the National Association of Master Builders and the various national trade unions involved. A maximum ten hour day is to be ultimately established; piece work schedules to be provided; no discrimination to be made against those taking part in the disputes; and a national system of arbitration and conciliation to be worked out for the future. In June a further award increased wages slightly and provided a maximum day of 9½ hours in six large cities after April, 1911, and of ten hours elsewhere after April, 1911, or April, 1912.

A strike of 8000 mechanics in the shipyards at Hamburg on August 4 was the beginning of widespread interruption of the ship-building industry in west and northwest Germany. The men demanded an increase in wages of 10 per cent. and other concessions. Stevedores, ship cleaners, and painters joined in the general dispute a few days later. The strikers were supported by Socialist organizations and by the Metal Trades Workers' Union. In order to force a conclusion of the strike the Association of Metal Employers voted to lock out 60 per cent. of their employees if work was not resumed by October 8; the men in turn voted a strike of 60 per cent. in case of a lockout. From 500,000 to 700,000 men would have been idle. A settlement was reached on October 14, the men receiving a reduction of one hour per week and an increase of 4 to 5 per cent. in wages. See **GERMANY**, paragraphs on *History*.

**FRANCE.** One of the strikes causing the greatest amount of international interest was the strike of the employes on the Northern and Western railways of France. This was planned and directed in part by the General Confederation of Labor, which for several years has been carrying on violent labor disturbances with the

view of overturning the existing political and industrial régime. The railway strike was apparently intended to show the power of organized labor, and was based on the demand that one dollar be the minimum daily pay for any kind of railway work. To enforce this demand the union threatened to tie up all railway traffic as well as transportation by the street railways, subways, and carriages in Paris, to shut off electric lights and power, and to cut off the city's food supply. The strike began October 11. Trains were instantly halted and passengers to Atlantic ports and commuters were much inconvenienced. For the moment a food famine threatened Paris, but the government, under the lead of Premier Briand, showed a strong and determined hand. It requisitioned all boats on the Seine to bring in supplies; it likewise provided transportation by water to Atlantic ports. It stationed troops along the railway and it required all strikers who belonged to the army reserves to report for military duty. (See **FRANCE**, paragraphs on *History*.) In addition fifty-two strike leaders were arrested. The strikers resorted to malicious destruction of property, removing rails, cutting air brake tubes and destroying telegraph wires and poles. Within a few days, however, Premier Briand had secured a settlement which conceded the principal demands of the strikers. The cost of this strike to the country was estimated at \$55,000,000. The railways and other transportation companies generously rewarded those employes who remained on duty. The government thereafter took up the formulation of a law making the publication of revolutionary articles inciting to strikes and rioting offenses against the Press Law. See **ARBITRATION AND CONCILIATION, INDUSTRIAL**.

In April and May there were strikes of seamen, naval reservists, and others employed in the shipping industry at Marseilles, with two partially successful attempts to secure general sympathetic strikes at Dunkirk and Bordeaux. The immediate cause was the punishment of a number of seamen for desertion. The government took prompt measures by sending troops to preserve order and by taking charge of the transportation of mails. Normal conditions returned by May 10.

**SPAIN.** During the latter half of the year many very serious labor troubles developed. The chief centres were Bilbao and San Sebastian in the north, and Barcelona in the northeast. At the former places the wharves were paralyzed by strikes of cartmen and dockmen in sympathy with striking coal miners. Later in August the Workingmen's Association of Bilbao ordered a general strike. This order, however, was countermanded, but the rioting so paralyzed business that martial law was declared. In Barcelona a strike of 8000 metal workers was attended by a strike of 6000 miners at Sabadell. Much rioting was followed by the employment of military force to establish order. The disputes were not settled late in December. The continued labor disturbances were responsible in part for extensive emigration of laborers to the Americas.

**STRONTIUM.** See **ATOMIC WEIGHTS**.

**STUDENT VOLUNTEER MOVEMENT.** See **MISSIONS, PROTESTANT FOREIGN**.

**SUBMARINES.** See **NAVAL PROGRESS**.

**SUBSIDIES.** See **SHIP SUBSIDIES**.

**SUBWAYS.** See **TUNNELS AND NEW YORK**.

**SUDAN, ANGLO-EGYPTIAN.** A territory extending south from Egypt to Albert Nyanza and Uganda. Estimated area, 950,000 square miles; population, about 2,000,000 (Abyssinians, Egyptians, East Indians, Arabs, negroes, and 3104 Europeans). Capital, Khartum, with 18,235 inhabitants; Omdurman has 42,780. An educational system is being built up and there are training colleges for teachers at Khartum (Gordon Memorial), Omdurman, Suakin, and Rufaa. Khartum is the centre of Mohammedanism in the Sudan, and a magnificent mosque has been built there. There are under cultivation about 1,106,175 acres, and the country is especially adapted to the raising of cereals and cotton. The Omdurman gold-fields are being developed. Imports (1908), £E1,892,798 (clothing, coal, machinery, railing material); exports, £E515,938 (gums, ivory, ostrich feathers, cereals, cotton, dates). The railway from Cairo to Khartum (1047 miles) is being extended southward, and reached Wad Medani (110 miles) in December, 1909. The Nile-Red Sea Railway (113) has been built from Port Sudan to the mouth of the Atbara River. The Kareima-Abu Hamed Railway (138) runs eastward from the Nile to Abu Hamed, where it joins the line to Berber and Khartum.

There were in 1909 4965 miles of telegraph lines and 57 post and telegraph offices. Cost of military operations in the Sudan, 1883-6, £7,091,310; cost of the campaigns resulting in the overthrow of the Khalifa (September 2, 1898), £789,802. Revenue for the year 1909, £E1,040,000; expenditure, £E1,153,000. Estimates for 1910, £E1,100,000 and £E1,425,000. The results of years of war, pestilence, and famine will be felt for some time to come; and for the present the excess cost of administration over local revenue is borne by the Egyptian government. Each of the 13 provinces is under a governor, who is a British officer of the Egyptian army. Darfur is left under the rule of its sultan. The supreme military and civil command is vested in a governor-general (1910, Lieut.-Gen. Sir F. Reginald Wingate, Sirdar of the Egyptian army). Upon the death of Leopold II., King of the Belgians, the lease of the Lado Enclave lapsed and that territory reverted to the Anglo-Egyptian Sudan.

**SUGAR, WORLD'S PRODUCTION.** The world's production of sugar in 1910-11 is estimated at 17,023,000 tons, or 2,143,000 tons more than in 1909-10. Cane and the sugar beet contributed about equally to this total output. The production from cane was 8,521,000 tons, distributed as follows: United States (Louisiana and Texas), 310,000 tons; Porto Rico, 320,000; Hawaii, 485,000; Cuba, 1,900,000; British, French, and Danish West Indies, 215,000; Santo Domingo, Haiti, and Lesser Antilles not named, 108,000; Mexico, 170,000; Central America, 17,000; Brazil, 310,000; Peru, 150,000; Argentina, 130,000; Demerara, 100,000; other South American countries, 16,000; British India, 2,100,000; Java, 1,175,000; Philippines, 230,000; China, 120,000; Australia and Polynesia, 256,000; Africa (Egypt, Mauritius, Réunion, and Natal), 351,000, and Spain, 24,000 tons.

**BET SUGAR, UNITED STATES.** The beet sugar crop is estimated at 8,502,000 tons, of which 445,000 are credited to the United States. The season was unfavorable to the crop in several States, whereas the production in California, Michigan, and Wisconsin con-

siderably exceeded that of the previous year. California led with 129,000 tons, followed by Michigan with 105,000, Colorado with 88,000, Utah with 40,000, Idaho with 19,000, and Wisconsin with 17,000. There were three new factories in operation in 1910, and in 1911 there will be five new ones, two in California, and one each in Colorado, Utah, and Nevada. The factory value of the beet sugar was about \$51,000,000, which with that from the cane mills brings the total value of the United States product up to about \$97,000,000.

**FOREIGN COUNTRIES.** In Canada it is estimated that 10,500 acres of beets were grown, indicating a sugar production of 9500 tons. The estimated European crops of beet sugar were: Germany 2,500,000 tons, Austria 1,600,000, France 825,000, Russia 1,900,000, other countries 525,000 tons. Dutch sugar concerns have been contracting with farmers in eastern England to supply sugar beets for factories in Holland. Sugar beet growing is to be introduced into Hawaii, on the island of Lanai, which has been practically barren for many years. A water system is to be installed, which it is believed will make a large acreage available for beet raising. Experimental plantings have given encouraging results, the percentage of sugar being high. The favorable tariff with the United States has aroused widespread interest in sugar production in the Philippines. Sugar growing there has far outstripped the methods of milling practised, which result in an enormous loss by poor extraction, and the open kettle evaporation, used exclusively, produces only a fair grade of sugar. The first need of the industry is a series of modern central mills in all the principal sugar districts. The growing of sugar cane in the Australian Commonwealth has shown a constant decline since 1906. In Greece sugar has been made a government monopoly. Proposals for supplying the monopoly are to be asked from various countries in the spring of 1911. By royal decree, December 1, 1911, has been named as the date on which the monopoly will go into effect.

**CONSUMPTION.** The sugar consumption in the United States in the fiscal year 1910 was about seven and one-half billion pounds or 83 pounds per capita, the largest for any year. The American Sugar Refining Company has agreed to make a further payment of \$700,000 to the United States Government on account of customs frauds, which will bring the total amount recovered from this company up to nearly \$3,000,000. In November, 1910, the government brought suit under the Sherman Act to dissolve the "Sugar Trust," naming 31 sets of defendants. See TRUSTS.

**SUGAR FRAUDS.** See TRUSTS.

**SUGAR TRUST.** See TRUSTS.

**SULPHATE OF AMMONIA.** See FERTILIZERS.

**SULPHUR.** See ATOMIC WEIGHTS.

**SUMNER, H. L.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**SUMNER, WILLIAM GRAHAM.** An American political economist and educator, died April 12, 1910. He was born at Paterson, N. J., in 1840, and graduated from Yale College in 1863. He subsequently studied at the universities of Göttingen and Oxford and became a tutor at Yale in 1866, serving in that capacity until 1869. In 1867 he was ordained clergyman in the Protestant Episcopal Church and was for some

time assistant at Calvary Church, New York City, and rector at Morristown, N. J. In 1872 he was appointed professor of political and social science at Yale College and remained in this position until 1909, when he retired. His lectures on economics attracted considerable attention from their pungent and incisive style. He was an earnest advocate of free trade and read and lectured much in favor of this economic principle. Among his chief publications are the following: *A History of American Currency* (1874); *Lectures on the History of Protection in the United States* (1875); *Life of Andrew Jackson* (American Statesmen Series) (1882); *What Social Classes owe Each Other* (1882); *Essays on Political and Social Science* (1883); *Protectionism* (1885); *Robert Morris* (1891); *A Financier and Finances of the American Revolution* (1892); *The History of Banking in the United States* (1896); *Folkways* (1907).

**SUN.** See ASTRONOMY.

**SUN SPOTS.** See ASTRONOMY.

**SUPER-DREADNOUGHT, THE.** See BATTLESHIPS.

**SUPER-LION, THE.** See BATTLESHIPS.

**SUPREME COURT, U. S.** See UNITED STATES.

**SURINAM.** See DUTCH GUIANA.

**SURVEYS.** See EXPLORATION.

**SWAMP LANDS.** See DRAINAGE.

**SWAN, JOHN MACALLAN.** An English artist and sculptor, died February 14, 1910. He was born at Old Brentford. He was about 50 years of age at the time of his death. He studied at the Worcester School of Art, at the Lambeth Art School and under various masters in Paris. He also studied sculpture under Frémiet. In 1885 he received honorable mention at the Paris Salon, and in 1889 he was awarded a silver medal at the Paris International Exhibition. At the Exhibition of 1900 he was awarded a first-class gold medal for painting and a first-class gold medal for sculpture. He began exhibiting figure and animal pictures in 1878. He also exhibited at the Grosvenor Gallery and the New Gallery. He was elected an associate of the Royal Academy in 1894 and a member in 1905. Among his best known paintings are "Orpheus," "The Prodigal Son," "Lioness Attending Her Cubs," and "A Dead Hero." His best known pieces of sculpture are "Puma and Macaw," "Boy and Bear Cubs," and "A Wounded Leopard."

**SWANN, A. J.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**SWARTHMORE COLLEGE.** An institution of higher learning at Swarthmore, Pa., founded in 1869. The number of students enrolled in the year 1910-11 was 370 while the faculty numbered 36. During the year Dr. Walter Dennison of the University of Michigan was elected professor of Greek and Latin. There were no notable benefactions during the year. The productive funds amount to about \$1,000,000 and the total income is about \$200,000. In the library there are about 35,000 volumes. The President is Joseph Swain.

**SWAZILAND.** A British protectorate in southern Africa. Area (official estimate), 6630 square miles. Population (1904): white, 890; native, 84,601. Statistics following are for the year ending March 31, 1910. Births (European), 31; deaths, 12. No records of native births and deaths. There are five European (119 pupils) and two native (78 pupils)

government-supported schools. The government also subsidizes some of the native mission schools. Some corn, sorghum, peanuts, and sweet potatoes are grown, but not sufficient to supply local demands. Now that the tenure under concessions granted by the late paramount chief Umbandine has been defined by means of legislation and survey, agriculture is expected to develop. Good grazing is abundant. Livestock: 600 horses, 50,000 cattle, 10,000 sheep, 80,000 goats. There are five principal gold mines and four alluvial tin mines in operation, employing about 2017 natives and 74 whites; output 1909-10, 446 tons cassiterite tin, valued at £28,368, and 11,202 ounces fine gold, valued at £46,707; 1908-9, 526 tons tin (£42,005) and 6749 ounces gold (£28,669); 1907-8, 535 tons tin (£49,568) and 3108 ounces gold (£13,203). Imports for the year were valued at £44,309 (in 1909, £47,310; in 1908, £37,850), and exports at £90,348 (in 1909, £56,206; in 1908, £83,148). Exports include re-export of specie, £4000. Imports to the value of £42,765 were merchandise; £1000 specie; £544 government stores. Principal exports of home produce: raw gold, £44,499; tin ore £41,768; hides, £54. There are no local railways. Revenue and expenditure for four years are shown below:

	1906-7*	1907-8	1908-9	1909-10
Revenue	44,922	39,529	46,484	44,718
Expenditure	74,845	57,568	91,127	54,217

\*Nine months.

The extraordinary expenditure (£10,074 in 1909-10, £49,874 in 1908-9, £18,094 in 1907-8, £52,511 in 1906-7) was incurred through the expropriation of monopolies and the cost of the settlement of the Concessions question. Public debt (March 31, 1910), £90,000. Police force: European, 5 officers, 20 non-commissioned officers and men; native, 19 non-commissioned officers, 150 constables. The territory is administered by the high commissioner for South Africa through a local resident-commissioner (1910, R. T. Coryndon), with headquarters at Mbabane. The native ruler is Sobhuza, a child under the regency of Nabotsibeni, his grandmother; he attends one of the native government schools.

**SWEDEN.** A constitutional monarchy of northern Europe. Capital, Stockholm.

**AREA AND POPULATION.** Area, 172,877 square miles. Population (1900), 5,136,441; estimated December 31, 1909, 5,476,441. Marriages (1908), 33,084; births, 142,309; deaths, 84,503; stillbirths (included in foregoing), 3435; emigrants, 12,499 (to United States, 8873); immigrants, 9818. Emigration has fallen off, having been 22,978 in 1907, 24,704 in 1906, and 39,525 in 1903 (to United States, 35,439). Stockholm had (end of 1909) 341,816 inhabitants; Göteborg, 163,957; Malmö, 81,169; Norrköping, 45,471; Helsingborg, 32,763; Gäfle, 31,930; Örebro, 29,107.

**EDUCATION.** Primary education is free and compulsory, and illiteracy is rare. Schools (1907): 14,226 elementary, with 19,925 teachers and 771,626 pupils; 15 normal, with 1491 students. Secondary schools are numerous and efficient. There are special and technical schools and two universities—Lund (967 students in 1907) and Upsala (1974); besides

a state faculty of medicine and private universities at Stockholm and Göteborg. The Lutheran is the state religion; entire religious liberty prevails.

**AGRICULTURE, ETC.** Forests cover 52.2 per cent. of the total surface, and are largely pine, fir, and birch. The timber, pitch, tar, and fuel obtained form a rich source of revenue; the crown forests cover 7,125,845 hectares (one hectare=2.471 acres) and yielded, in 1906, 2,649,910 cubic metres of timber. Lakes cover about one-twelfth of the surface. In 1907 the area under rye was 407,000 hectares; under barley, 197,000; oats, 811,000; wheat, 88,000; total cereals (including other), 1,896,000 hectares; under potatoes, 151,000. Total cereal yield (1907), 37,245,000 hectolitres; potatoes, 19,000,000. Total value of cereal crop, 306,600,000 kronor; of all crops, 787,400,000. Livestock (1907): 566,227 horses, 2,628,982 cattle, 1,021,727 sheep, 878,828 swine.

**MINING AND METALS.** In 1908, 31,754 persons were engaged in mining; 23,399 in iron and steel works, 3905 in other metal works. Output from the mines in 1907: 4,480,070 tons iron ore (4,713,160 in 1908); 2058 tons silver and lead ore, 21,371 copper ore, 40,077 zinc ore, 4616 manganese ore, 29,569 sulphur pyrites; (1908) 305,206 coal. Pig-iron produced (1908), 567,821 tons; bar iron, 390,957; gold (1907), 20.295 kilograms; silver, 630; lead, 277,371; copper, 2,807,792; zinc, 274,181. Value of total output of iron and steel works (1907), 89,889,548 kronor; of other metal works, 29,156,168.

**OTHER INDUSTRIES.** There were (1907) 1400 saw and planing mills, with 40,912 employes, value of output 172,872,343 kronor; 512 joinery and furniture factories, 11,921 (28,038,979 kronor); 143 wood-pulp factories, 11,058 (89,902,540 kronor); 66 paper and paste-board mills, 7725 (45,939,881); flour mills, 100, 525,582 kronor; machine shops, 84,274,701 kronor; sugar refineries, 58,669,728 kronor; raw-sugar mills, 42,363,874 kronor; breweries, 42,287,950 kronor; distilleries, 33,859,946 kronor; cotton mills, spinning 26,586,258 kronor, weaving 30,161,989 kronor; woolen mills, spinning 29,747,072 kronor, weaving 43,016,296 kronor.

Complete statistics of the industries for 1909 are lacking; but in every branch the effects of the general strike of August and September of that year were felt. It is reported that only 3,885,046 tons of iron were mined—the lowest figure in six years; and that the production of pig-iron fell to 443,000 tons. The cotton mills suffered from a shortage of raw cotton as well as from the strike.

**COMMUNICATIONS.** Length of railways (end of 1908), 8321 miles (2698 state-owned); of all telegraph and telephone lines (exclusive of private telephone lines), 22,146; of wires, 176,825; telegraph offices, 2660; post-offices, 3735.

Vessels entered (1908), 34,368, of 10,084,000 tons; cleared, 34,605, of 10,037,000 tons.

**COMMERCE.** The imports and exports are given for three years in kronor:

	1906	1907	1908
Imports .....	644,227,836	682,104,613	608,932,000
Exports .....	504,284,813	524,662,547	482,017,000

Principal articles of trade in 1908, in thousands of kronor:

Imports		Exports	
Coal .....	65,707	Wood .....	136,890
Cereals .....	51,979	Wood pulp .....	60,768
Machinery .....	27,918	Iron .....	41,334
Petroleum .....	23,199	Butter .....	37,223
Coffee .....	22,814	Iron ore .....	32,084
Cotton .....	20,151	Paper .....	28,774
Skins .....	17,409	Machinery .....	25,771
Iron mfrs. ....	16,764	Iron mfrs. ....	13,348
Fish .....	14,893	Stone .....	11,750
Oilcake .....	14,022	Matches .....	11,170
Wool .....	13,865	Fish .....	8,831
Iron .....	13,449	Wooden wares...	8,492
Woolens .....	10,925	Skins .....	6,847
Vegetable oils...	10,484	Animals .....	4,061

Principal countries of origin and destination, with value of special trade in thousands of kronor:

	Imports		Exports	
	1907	1908	1907	1908
Germany .....	240,771	210,730	108,719	103,341
Great Britain..	178,495	159,441	179,412	169,342
United States..	61,343	60,280	13,779	9,718
Denmark .....	50,540	45,217	57,705	45,908
Russia * .....	30,619	26,915	23,813	23,120
Norway .....	23,521	21,745	25,452	24,571
France .....	23,099	18,592	39,522	36,791
Netherlands ..	16,598	15,078	16,848	14,783
Belgium .....	9,893	7,940	13,949	12,537
Spain .....	3,010	2,889	8,291	7,431

\* Including Finland.

**FINANCE.** The unit of value is the krona, worth 26.8 cents. The budget for 1909 balanced at 216,932,000 kronor; for 1910, at 228,139,000. The budget for 1911 is shown below in thousands of kronor:

Revenue	1000 kr.	Expenditure	1000 kr.
Customs .....	60,000	War .....	49,979
Domains, etc. ....	39,855	Interior .....	44,094
Income tax .....	32,250	Instruction .....	23,840
Posts .....	22,600	Marine .....	19,382
Alcohol tax .....	21,800	Finance .....	12,597
Sugar tax .....	19,000	Agriculture .....	8,834
Stamps .....	17,000	Pensions .....	5,212
Malt tax, etc. ....	7,300	Justice .....	4,999
Dividend * .....	1,800	Civil list .....	1,493
Bank profit .....	6,256	Foreign Affairs...	1,459
Surplus .....	250	Extraordinary ...	28,629
Various .....	300		
<b>Total .....</b>	<b>227,911</b>	<b>Total .....</b>	<b>200,518</b>

\* From the Luossavaara-Kiurunavaara Co., Ltd.

The public debt (contracted almost entirely for railway construction) amounted, January 1, 1910, to 526,430,110 kronor. The Riksbank is the only bank of issue; its accounts balanced, January 1, 1909, at 361,836,566 kronor. The postal savings bank had at the end of 1908, 560,410 depositors, and 46,422,570 kronor deposits; other savings banks, 1,508,871 depositors, and 719,577,079 kronor deposits (688,614,199 kronor at end of 1907 and 613,319,195 kronor at end of 1905).

**ARMY.** The army embraces 28 regiments of infantry, 25 of which have 3 battalions; 2 regiments of 2 battalions each, and 1 regiment of 2½ battalions of Gotland, making a total of 81½ battalions of infantry. There are 8 regiments of cavalry divided into 56 squadrons, 6 regiments of field artillery, one of which includes 3 horse batteries in addition to the 9 batteries comprising each regiment. There was also one corps of artillery in Gotland and 3

mountain batteries; one regiment of heavy foot artillery divided into 4 batteries, and an artillery corps in Gotland with one heavy battery. There was one regiment of fortress artillery with a battalion of four batteries at Sailesburg and a battalion with 3 batteries at Boden. In addition each of these regiments of field artillery has 2 batteries of howitzers, making 12 howitzer batteries with 48 howitzers. There were one regiment of fortress artillery comprising 10 companies, 2 battalions of engineers comprising 2 companies and 6 battalions (18) companies of train.

The active army in 1910 consisted of 2226 officers, 2234 non-commissioned officers, 21,016 in voluntary cadres, and 40,350 in the annual contingent. The total was 65,826 men and 8793 horses. The war effective was estimated at about 320,000 and the Landsturm with 8 classes at about 165,000.

**NAVY.** The effective navy in 1910 included 91 vessels, of 67,250 aggregate tons, detailed as follows: 12 armored coast-defense vessels, of 42,600 aggregate tons; one armored cruiser (4100); 3 armored gunboats of 4500, and 7 of 3200 aggregate tons; 5 torpedo gunboats (4000); 4 gunboats (1850); 6 torpedo-boat destroyers (2600); 31 first-class torpedo boats (3100); 22 second-class torpedo boats (1300). Two destroyers (the *Vidar* and the *Hugin*) were acquired in 1910. Other torpedo boats and destroyers are building or projected, and three submarines were authorized in 1910. Personnel, about 7500 of all ranks.

**GOVERNMENT.** The king is the executive, acting through a responsible council. A diet (*Riksdag*) of two chambers is the legislative body. Reigning sovereign (1910), Gustaf V, born June 16, 1858; married, September 20, 1881, to Princess Victoria of Baden; succeeded, December 8, 1907, Heir-apparent, Prince Gustaf Adolf, born November 11, 1882. The Council of State (appointed May 29, 1906; reconstituted December 4, 31, 1907, March 17, June 11, 1909, and June 10, 1910) was as follows: Premier, S. A. A. Lindman; Foreign Affairs, A. F. Count Taube; Justice, G. A. Petersson; Finance, C. J. G. Swartz; Interior, H. E. G. Count Hamilton; Marine, H. V. M. von Krusenstjerna; War, Major-General O. B. Malm; Worship, etc., Dr. P. E. Lindström; Agriculture, S. O. Nylander; without portfolio, C. F. W. von Hederstierna and K. H. von Sydow.

The Riksdag opened on January 17. The speech from the throne referred to the good relations with foreign powers, the frontier question with Norway having been settled by arbitration, and promised to introduce a measure for preventing strikes and protecting public institutions and to submit proposals for tariff revision, the increase of stamp duty and death dues, the amendment of the method of taxing income and the increment of wealth. On August 2, the Universal Peace Congress held its eighteenth meeting at Stockholm, with 500 delegates representing 22 nations.

**SWEET WINES.** See LIQUORS, *Fermented and Distilled*.

**SWIMMING.** Charles M. Daniels of the New York A. C., who holds every record from 25 yards to one mile, again demonstrated in 1910 that he was in a class by himself as a swimmer. The majority of the new records made during the year were made in relay races

and at odd distances. The increased interest taken in the sport by the colleges was a noteworthy feature of the season. The championships of the Amateur Athletic Union were held in several different cities at various times during the year. The winners of the principal events were: (indoor) 50,100,220 and 500 yards, C. M. Daniels; (outdoor) 440 yards, C. M. Daniels; (outdoor) 880 yards and 1 mile, L. B. Goodwin; 400-yard relay (four men, 100 yards each), C. M. Daniels, George South, J. H. Reilly and N. Nerich of the New York A. C.; (indoor) 200-yard, breast stroke, M. McDermott of the Illinois A. C.; (indoor) fancy diving, George Gaidzik of the Chicago A. A. C.; (outdoor), high diving, George Gaidzik; plunging, C. Brown of the Illinois A. C. A new relay record for 400 yards was made in April by C. M. Daniels, C. T. Trubenbach, N. Nerich and George South of the New York A. C., whose time was 4 minutes  $\frac{3}{4}$  seconds.

F. E. Beaurepaire proved himself to be the best amateur swimmer in England by winning the 100-yard, 220-yard and 500-yard championships, indoor, and the 880-yard and one mile championships in open water. Other amateur winners in the English events were: high diving, H. Johannsen; fancy diving, H. E. Pott; 200-yard breast stroke, indoors, H. Julin; plunging, H. W. Allason.

Yale won the intercollegiate indoor championship trophy with a total of 27 points. Pennsylvania was second with 16 points and Columbia third with 2 points. Yale also won the water polo title. J. K. Shyrock of Pennsylvania established a new record for 100 yards, his time being 1 minute. He also won the 50-yard swim. H. S. Palmer of Yale won the 220-yard, J. C. Stoddart of Yale the fancy diving and R. Loree of Yale the plunging events. In the intercollegiate outdoor championships Princeton was first, scoring 20 points. Yale was second and Pennsylvania third. H. Brown of Princeton won the quarter-mile and mile and H. Platt of Princeton, the diving events.

**SWINE.** See STOCK RAISING.

**SWITZERLAND.** A federal republic of central Europe, made up of twenty-two cantons. Capital, Bern.

**AREA AND POPULATION.** The Federal Department of the Interior gives 41,323.99 square kilometres (1 square kilometre=3861 square mile) as the latest official computation of area; of this total, 1,309.94 are under lakes. Population; in 1900, 3,315,443; according to the census of December 1, 1910, 3,765,000 (subject to revision). On the latter date population according to language was: German, 68.8 per cent.; French, 21.7; Italian, 8.3; Romansh, 1.2. Population of Bern (1909), 78,500; Zurich, 183,500; Basel, 129,800; Geneva, 121,200; Lausanne, 60,000; St. Gallen, 55,400. Marriages (1909), 27,395; births, 97,296; deaths, 62,596; stillbirths (included in foregoing), 3184; emigrants, 4915.

**EDUCATION.** Primary instruction is free and compulsory, though not strictly enforced in the Roman Catholic cantons. In the Protestant cantons illiteracy is rare. Education is controlled by cantonal and communal authorities. Primary schools (1907), 4689, with 526,243 pupils; infant 946, with 43,306 and (private) 86, with 2286; secondary, 619, with 46,223; middle, 39, with 13,051; normal, 47, with 3170. There are agricultural, commercial, and other

special schools; and six universities with a total of matriculated and non-matriculated students in 1907-8 of 8751 (women, 2230).

According to the 1900 census there were 1,916,157 Protestants, 1,379,664 Roman Catholics, 12,264 Jews. Only the Jesuits are denied religious toleration.

**INDUSTRIES.** According to the industrial census of August 9, 1905, the number of persons above the age of 14 engaged in agriculture numbered 763,915. Of the total productive area (2,088,377 hectares), 866,500 hectares are under meadows, 687,540 under pasture, 244,731 under crops, 10,449 under gardens, 24,794 under vines, 200,934 under worked forest, and 53,429 under sedges. Official statistics are lacking for areas and production of principal crops. The wheat crop is given for 1909 at 4,000,000 bushels, against 3,527,000 in 1908. The wine output in 1909, as reported by *Le Moniteur Vinicole*, was 22,220,000 gallons, against 26,400,000 in 1908. Tobacco is cultivated in three cantons. Livestock (1906): 135,372 horses; 1,498,144 cattle; 209,997 sheep; 548,970 swine; 362,117 goats. Federal supervision extends over 1,119,270 acres of forest tract; during 1909, 22,661,790 trees were planted, and 1,889,931 cubic metres of timber were cut. In 1909 there were 188 establishments for pisciculture; fry, 64,259,500. Output from the salt districts (1907), 580,339 quintals. Output of the cement works (1909), 583,367 metric tons. The agricultural enterprises numbered, according to the industrial census of 1905, 250,066; arts, trades, industries and commerce, 242,543; domestic industries, 71,413. There were (1907) 161 breweries; output, 2,435,544 hectolitres. Sale of alcohol (federal) in 1908-9 amounted to 113,600 cwt. for human consumption and 117,200 cwt. for industrial purposes. The watch industry has fallen off since 1906, in which year there was an increased demand for the Swiss product. There are reported to be 2100 dairies, devoted largely to the supplying of the numerous chocolate, condensed milk, and cheese factories.

**COMMERCE.** The trade for three years is given in thousands of francs as follows:

	1907	1908	1909
Imports, merchandise	1,687,427	1,487,149	1,602,140
Imports, money	48,746	46,827	39,968
Exports, merchandise	1,152,938	1,038,437	1,097,666
Exports, money	36,042	21,366	39,894
Transit	1,139,526	1,021,847	.....

The value of the important articles of special commerce is given below for 1909:

Imports	1000 fr.	Exports	1000 fr.
Cereals, etc.	180,900	Cottons	219,100
Silk	162,000	Silks	157,700
Coal	93,100	Watches	126,000
Cottons	72,000	Machinery	67,400
Woolens	64,500	Spun silk	58,600
Animals	63,200	Cheese	57,800
Chem. prods.	51,800	Raw silk	54,500
Cotton (raw)	50,500	Chem. prods.	47,400
Prec. mets.	49,500	Chocolate	32,100
Iron	47,800	Milk	31,700
Machinery	42,500	Skins	19,600
Wine	38,600	Woolens	15,200
Iron mfrs.	32,700	Straw goods	14,300
Sugar	32,500	Jewelry	14,000
Timber	30,500	Iron mfrs.	12,300
Meat	28,900	Cotton yarn	12,300
Leather	26,800	Woolen yarn	12,000
Wool	25,400	Prec. mets.	11,700
Cotton yarn	20,300	Animals	11,600

Countries of origin and destination, with value of trade in 1000 francs:

	Imports		Exports	
	1908	1909	1908	1909
Germany ..	512,702	533,810	239,881	254,019
France ....	283,577	306,131	117,211	120,563
Italy .....	171,852	185,169	92,185	83,523
Aus.-Hun. .	98,835	102,074	64,954	70,069
America ....	112,895	123,665	170,588	212,487
Gr. Brit. ...	87,012	90,668	178,538	181,709
Russia ....	49,576	82,412	32,814	34,268
Asia .....	36,225	40,995	38,914	35,241
Belgium ...	31,354	34,767	18,522	19,794
Africa .....	22,238	27,644	12,722	12,597
Neth'lnds ..	16,994	16,818	8,069	8,361
Australia ..	10,457	12,291	5,963	8,205
Other c'tries	53,371	45,696	51,400	50,125
Not stated. .	.....	.....	6,678	6,678
Total ....	1,487,149	1,602,140	1,038,437	1,097,666

**COMMUNICATIONS.** For 1909, 4923 kilometres (3059 miles) of railway are reported in operation; cost of construction (to end of 1907), 1,572,159,097 francs; receipts (1907), 202,614,905; expenditure, 136,331,774. The St. Gothard Railway was acquired by the confederation in 1909, making the fifth important line to be taken over. Telegraph lines (1909), 2280 miles; wires, 16,015; offices, 2350. Telephone lines, 16,560 miles; wires, 167,700. Telegraph and telephone receipts for the year, 14,781,328 francs; expenditure, 14,438,847. Post-offices (1909), 1950; receipts, 54,049,707 francs; expenditure, 50,313,648.

**FINANCE.** The unit of value is the franc, worth 19.3 cents. The revenue and expenditure for three years are given below in francs:

	1907	1908	1909
Revenue .....	145,914,260	147,391,133	155,678,421
Expenditure ...	139,310,086	150,879,386	158,842,817

Budget estimates for 1910 are seen below in thousands of francs:

Revenue	1000 fr.	Expenditure	1000 fr.
Customs .....	71,383	Posts & Rys. ....	72,963
Posts & Rys. ....	71,236	Military .....	40,499
Investments ....	4,391	Interior .....	13,984
Military .....	3,642	Com. & Ind. ....	12,560
Real Prop. ....	1,707	Customs .....	7,886
Justice .....	836	Debt charge .....	7,178
Com. & Ind. ....	709	Gen. Admin. ....	1,390
Gen. Admin. ....	103	Political .....	1,144
Interior .....	54	Justice .....	938
Political .....	20	Finance .....	863
Finance .....	15	Misc. ....	47
Misc. ....	36		
Total .....	154,130	Total .....	159,450

The public debt amounted, January 1, 1910, to 222,831,785 francs.

**ARMY.** The Swiss army is a National Militia in which service is compulsory between the ages of 17 and 49 with few exemptions permitted. By a law promulgated January 25, 1910, the Federal Military Department was reorganized and made to include the chancellery, the general staff, and various sections or divisions, 12 in all, concerned with the various arms or services. The schemes of military service provides that a recruit who in many cases has received military or gymnastic training in schools or cadet corps, shall be liable for 13 years service in the Auszug or Elite, then 12 years in the Landwehr, and 6 years in the Landsturm. In the first year in the Auszug the recruit course is 92 days for the cavalry, 77 days for the artillery, and 77 days for the infantry and

every subsequent year there are repetition courses of 13 days. This makes the total service during the 13 years in the Auszug (10 years for cavalry) 141 days for the infantry, 148 for the engineers, 160 for the cavalry, and 163 for the artillery. With the increase of service in the Auszug, the amount required for the Landsturm was diminished through mounted troops were to be included in the latter. The effective strength of the Swiss Army in 1910 was given as follows: Auszug or Elite, 140,784 men; Landwehr, 68,546 men; total, 209,330 men. Landsturm, 56,621 men. These figures were almost the same as those for the preceding year. In 1910 the Auszug was organized into 96 battalions of infantry, 8 battalions of rifles, 24 squadrons of dragoons, 48 field batteries of 6 guns each, 2 mountain batteries, 10 position batteries, and 2 companies of light horse. In the Landwehr there were 96 battalions of infantry, 8 battalions of rifles, 24 squadrons of dragoons, 8 field batteries and 15 position batteries. This makes a field army of about 200,000 men available for service. In addition to the armed divisions of the Landsturm mentioned above the enrolled strength could be brought up to about 300,000 men. In 1910 the war budget was 40,499,000 francs, or an increase over previous years in consequence of the provisions of the legislation of 1907 where provision was made for increasing the size of the army and improving the equipment. In April 4,500,000 francs was appropriated for fortifications at St. Gothard and St. Moritz and during the year other large appropriations were made for equipment, etc. The Swiss army was being re-armed with a new magazine rifle of high muzzle velocity.

**GOVERNMENT.** A federal council of seven members exercises the executive authority. This council is elected for three years by the National Assembly, and presided over by the president, who, with the vice-president, is elected, also by the assembly, for one year from among the council members. The National Assembly, the legislative body, consists of two chambers—the National Council (187 members) and the Council of State (44 members). Each canton is sovereign within its boundaries save for the restrictions imposed upon all by the federal constitution. President (January 1 to December 31, 1910), Robert Comtesse; vice-president, Marc-Emile Ruchet. Heads of departments in 1910: War, E. Müller; Justice, Dr. E. Brenner; Finance, J. A. Schobinger; Commerce, etc., Dr. A. Deucher; Posts and Railways, Dr. L. Forrer; Interior, the vice-president.

An important referendum on the question of constitutional reform was submitted to the people, having received 142,000 signatures. It demanded the introduction of a system of proportional representation in elections for the National Council. The people rejected it, however, by a vote of 262,066 against 238,928. An amendment was recommended by the Federal Council giving the central government control over the automobile traffic and aerial navigation. Floods in June caused damage amounting to nearly \$5,000,000.

**SYKES, E. C.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**SYPHILIS.** See ARSENO-BENZOL.

**SYRACUSE UNIVERSITY.** An institution of higher learning at Syracuse, N. Y.,

founded in 1870. The number of students enrolled in the various departments of the university in 1910-11 was 3300 while the faculty numbered 250. Among the noteworthy benefactions during the year were the following: \$300,000 from John D. Archbold; \$50,000 from Mrs. Russell Sage; and \$20,000 from the late John S. Huyler. Courses in agriculture and forestry were established. There were no noteworthy changes in the faculty during the year. The productive funds of the university amounted to \$2,094,378, and the total income to \$827,376. The library contains about 80,000 volumes. The Chancellor is Rev. J. R. Day, LL. D.

**SYRIA, EXCAVATIONS IN.** See ARCHÆOLOGY.

**TAFT, WILLIAM HOWARD.** See UNITED STATES, *History*, and in general articles on political subjects.

**TAILHADE, L.** See FRENCH LITERATURE.

**TALLOW.** See MEAT AND MEAT INSPECTION.

**TANTALUM.** See ATOMIC WEIGHTS.

**TARIFF.** DISCUSSION OF THE PAYNE-ALDRICH ACT. The most significant fact with reference to tariff history of 1910 was the revolt against the Republican party on the ground that the Payne-Aldrich tariff was not a fulfillment of the party's promises in 1908. The discussion of the tariff was, therefore, mainly political, bearing upon the special rates of the new duties and their justification rather than on the general question of protection as against free trade, or the general effects of the protection policy. Newspapers and magazines kept up a running fire on some of the schedules throughout the year. The "insurgent" Republicans, among whom Senators Dolliver and Bristow were prominent, engaged in the controversy with telling effect. The woolen, the cotton, the rubber and the metals schedules were the most frequent objects of attack. The popular literature of the year supplied an abundance of concrete data as to the exact deals involved in the making of rates, the parties especially interested, and many of the specific results achieved. Senator Bristow made an especially pointed attack against Senator Aldrich's connection with the making of rubber schedules owing to the latter's connection with the United States Rubber Company and the Inter-Continental Rubber Company of America. Opponents of the tariff pointed out in detail how the rates had been made extremely complex, how the specific and *ad valorem* rates had been combined so as to give specially high protection for the particular products of special manufacturers. Thus under the extremely detailed and complicated cotton schedules were instances of discrimination in favor of one group of mills by means of cumulative specific duties, beginning with 5¼ cents for a square yard and adding two cents, then one cent, according to weight or peculiarity of weave. The belief was thus strengthened among its opponents that the tariff had been made by log-rolling methods; that special interests had been allowed to write their own schedules; and that so-called experts had deceived and confused Congress in the interest of particular lobbyists.

The Republican promise upon which the tariff was revised in 1909 stated that the rates should allow, "a reasonable profit to American industries." This figured in the discussions of

the year with reference to the cotton and some other schedules. Thus many of these duties were increased by an amount ranging from forty to eighty-five per cent., although it was shown that the profits of large cotton mill companies ranged from an average of twelve per cent. to an average of fifty-four per cent. for a period of nine years. Moreover these same companies had accumulated an average surplus of over sixty per cent. of their capital in the same period. Senator Dolliver, among many instances, cited the Diamond Rubber Company, Akron, Ohio, which in ten years had declared stock dividends increasing its capital from \$50,000 to \$10,000,000.

A point of special controversy was whether the average duty was less under the Payne-Aldrich act than under preceding tariffs. This was declared by the President and others to be the case and to be proof of revision downward; others denied the fact; and still others were disposed to point to the undoubted increases in the rates of many of the most important articles of general consumption. On February 12, in New York City, President Taft made a defense of the tariff. Although the party had not specifically promised a revision downward, he quoted from a special statistical report that had been prepared for him stating "you get decreases on 654 items, involving a consumption value of \$5,000,000,000." He specified schedule by schedule the number of items on which reduction had been made and the total value of things consumed in the United States to which these reductions applied. This occasioned universal comment. In *The Independent* (September 8), Senator Dolliver made an analysis of the data which had furnished the basis for the President's speech. He claimed that "nearly all the \$5,000,000,000 of consumption is made up either of food products which we export or of raw materials like coal, iron ore, petroleum and hides of cattle, or partly manufactured materials like pig iron, scrap iron, tonnage steel and lumber ready for planing mills. The public has asked and asked in vain for someone to point out a single reduction on any article ready to enter into consumption which has a commercial significance of any sort."

Similarly the argument that the tariff was a protection for American labor was attacked by showing that in many cases where the rates were high and where a combination of producers existed the labor cost was only a few per cent. of the entire cost. A report presented to the annual convention of the manufacturers of vehicles and agricultural implements claimed to show that, though the United Lead Company, controlling fully eighty-five per cent. of the output, enjoyed protection ranging from forty to seventy-nine per cent, wages were only four per cent. of the total cost. Likewise, it was claimed the Sugar Trust, with a wages bill of only three per cent. of the total cost of production, had seventy-one per cent. protection. Similar, though less striking, figures were presented with reference to the Meat Trust, the Glucose Trust, and the woolen and cotton industries. In this connection it was asserted that American workmen are among the consumers of the articles made high by the tariff; that wages are naturally high in the United States because of the favorable natural conditions in which labor is employed; but

that, with free immigration to supply hordes of cheap laborers, it is pure sophistry to contend that the protective system is necessary in order to safeguard American workers and standards of living from competition of the pauper laborers of Europe.

**MINIMUM RATES.** The Payne-Aldrich law, although abolishing reciprocity treaties and making no provision for new ones, provided that the President, after due investigation of the tariff rates of other countries should issue a proclamation declaring either the maximum or the minimum tariff in force against the goods of each country. The maximum tariff is simply the addition of 25 per cent. *ad valorem* to the rates of the minimum tariff. It thus sometimes doubles the latter. By April 1, the date set for the completion of these proclamations, 134 of them had been issued, all of which declared the minimum schedules applicable. Thus the entire import trade of the country is carried on under the minimum rates. The law provides, however, that the benefits of these rates may be withdrawn after ninety days' notice.

**TARIFF BOARD.** In September, 1909, President Taft had appointed Messrs. Henry C. Emery, Alvin H. Sanders and James B. Reynolds as a Tariff Commission or Board under the provisions of the Payne-Aldrich act. This board was authorized to secure such information as the President might require in applying the maximum and minimum schedules of the tariff act and such as customs officers might need in the administration of the tariff laws. A number of conservative members of Congress took the view that this commission would have only minor duties to perform, that its functions could not be stretched so as to provide any basis for tariff revision but that on the contrary it would be of occasional use only in the administration of the existing law. President Taft, especially after the vigorous denunciation of the 1909 tariff, did not take this narrow view of the functions of the commission; and, at his special request, Congress, in May, appropriated \$250,000 for the activities of the commission. With the spread of the view that the tariff should be scientifically revised on the basis of information secured by the commission there appeared various discussions of the difficulties involved in such a procedure. By scientific revision in this connection was meant a revision on the basis of differences in cost between the United States and foreign countries. It was pointed out that ascertainment of costs of production both at home and abroad would be extremely difficult on account of the great variety of conditions, the reluctance of producers to furnish information, and the uncertainty as to the reliability of the information furnished. The element of time was considered important also; during the many months which such revision would require business would be in a continual state of uncertainty. Then the rates must be altered whenever cost conditions changed either here or abroad. This again would introduce uncertainty. Moreover, since cost conditions vary in different countries a special schedule would be required for protection against each country. Differences in the cost of transportation would be an added element of complication. The Republican platform declared that it favored "a reasonable profit to American industries;" to determine what constitutes such profit would likewise in-

volve great difficulties. To these must be added the political obstruction set up by free traders, by politicians pledged to the established order, and by those industries now receiving special favor.

Professor Taussig, writing in the *Atlantic Monthly*, pointed out that the plan of revision on the basis of the difference in cost, if carried to its logical limit, would have the effect of annihilating foreign trade. The doctrine in its full possibility would mean protection for all lines of production, making the importation of foreign goods impossible. To draw the line somewhere short of this extreme is difficult. We now have duties of more than 100 per cent.; Senator Aldrich, in the debate on the Payne-Aldrich bill, said he would vote for as much as 300 per cent. Professor Taussig raised the question why it should be deemed necessary to equalize differences in cost at all. This process implies that prices will be raised in this country; that American wages will buy less than before, and that international trade will be restricted. While pointing out the almost insuperable difficulties confronting the Tariff Board he showed that it should reveal the undue gains of monopolized industries, and the extent to which there are businesses entitled to a rightful consideration in future tariff making.

Late in September the Tariff Board met in Washington and laid plans for an investigation of Schedule K, the woolen schedule. It was stated that the cotton and metals schedules would be taken up thereafter, and that at least five schedules would probably be thoroughly scrutinized during the first year's work. Somewhat later Mr. James B. Reynolds of the board was abroad seeking information in German industrial centres as to the conditions of production and the effects of the American tariff. He was reported as not being enthusiastically received.

**CANADA. CANADIAN RATES AND RECIPROCITY.** In carrying out the provisions of the Payne-Aldrich law, which gave the President until April 1, 1910, to decide whether the maximum or the minimum tariff should be applied to different countries, the greatest difficulty was met in the case of Canada. This country has three tariffs: a very low one applying to only a few British goods; an intermediate one applying to some half dozen countries with which special trade conventions have been made; and the general tariff for the rest of the world, including the United States. The difference between these last two is very small. Americans claimed that the policy of preference for goods imported from the British Isles, the conclusion of a treaty with France giving that country favorable rates, and the existence of the intermediate tariff were discriminations against the United States, and that, therefore, the maximum rates should apply to Canadian goods. President Taft, being very anxious to secure an arrangement that would insure the largest volume of trade between the two countries, arranged an interview at Albany with Earl Grey, Governor-General, and Mr. Fielding, Minister of Finance. Other conferences and correspondence followed, settlement being reached late in March. Canada granted to the United States its intermediate tariff on thirteen schedules, including forty articles. The chief items involved were cotton-seed oil, drugs, window glass, leather, china, porcelain, soap, perfumery, photographs and works

of art. The total trade in these articles is about \$5,000,000.

Throughout the year the matter of reciprocity between the two countries was widely discussed. American writers pointed out that the United States would gain by the enlargement of its free trade territory; for there are many indications that agricultural products are falling behind the increase in population and that our exports in the future will be less and less agricultural and more and more industrial. Some middle-western States that only a few years ago were almost exclusively agricultural are now devoted very largely to manufacturing. In New England particularly was the demand for Canadian reciprocity strong and insistent; but at the same time it was evident that States like New York, Ohio, and Illinois would equally profit by the free importation of Canadian manufactures. On the other hand Canadian manufacturers declared that they would lose more than the Canadian people as a whole would gain. The Montreal Board of Trade and Chamber of Commerce voiced the sentiment of commercial and industrial interests of the Dominion in their declaration that, while the United States might be ready for reciprocity, Canadian industries were not yet sufficiently developed under the stimulus of protection to enable them to withstand a free importation of American goods. Following this declaration some American writers demanded that, if reciprocity were impossible, the American restrictions on the products of Canadian fisheries, farms, forests and mines should be removed. On December 16, 1000 Canadian farmers presented formally to Premier Laurier demands for immediate downward revision of the Canadian tariff. He bade them await the outcome of the reciprocity negotiations.

Early in the year President Taft, in an interview with the editor of the *Toronto Globe*, had declared himself strongly in favor of reciprocity and had stated that he would soon open negotiations to establish greater freedom of trade between the two countries. His difficulty in this matter was greatly increased by the Payne-Aldrich Act, which repealed all reciprocity treaties, and made no provisions for new ones. In September the President secured the consent of the British Ambassador, James Bryce, to open direct negotiations with Canada. In October the Canadian government signified its willingness to take up negotiations. Two representatives were sent from Washington in November; after considerable consultation adjournment was made to Washington in January.

**GREAT BRITAIN. The Issue.** Since 1904, when Mr. Joseph Chamberlain proposed the imposition of import duties in connection with the policy of colonial preference in trade, tariff reform has been a foremost topic of political discussion. Mr. Chamberlain proposed to put duties of two shillings per quarter on grains, five per cent. on foreign meats and dairy products, and ten per cent. on foreign manufactured goods. He exempted maize and bacon. Imports from the British colonies were to be exempt or they were to be taxed at lower rates. Immediately thereafter the Tariff Commission was appointed to examine the probable effect of the proposed reforms. Up to the close of 1910 this commission had submitted exhaustive reports on the following fourteen indus-

tries: iron and steel, cotton, wool, hosiery, lace, carpets, silks, flax, hemp and jute, engineering, including ship building, pottery, glass, sugar and confectionery, and agriculture. It prepared also a number of memoranda giving comparisons and other statistical information. Following the introduction of the Finance Bill in April, 1909, a direct political issue was joined between tariff reform with colonial preference on the one hand and free trade and numerous social reforms on the other. The organizations supporting tariff reform are the Imperial Tariff Committee, the Tariff Reform League, the Woman's Imperial Tariff Reform League, and the Liberal Union Club. Those opposing include the Constitutional Free Trade Association, the Free Trade Union, the Woman's Free Trade Union, and the Cobden Club.

*Arguments for and against.* The arguments for Tariff Reform are based primarily on the needs of revenue to carry out proposed social reforms, such as old-age pensions and labor exchanges, and the necessity of cementing all parts of the British Empire by favorable trade relations. In addition there is a variety of arguments based more or less directly on the advantages of the protective system. The prosperity of Germany and the United States and keen rivalry of these with British producers both at home and throughout the world are pointed to. The tariff is made responsible for the remarkable industrial development of England's great rivals. The need of import duties to check dumping, or at least to put dumped articles under tribute to the Exchequer, is appealed to. It is argued that import duties on foreign manufactures will increase employment at home. This increased employment would in turn increase the demand for goods leading to further increase in employment. Some argue that food prices would not be made higher because England would receive the surplus of the world. Others argue that even should food prices be made higher the necessity of an independent food supply in time of war would justify the loss. Then it is argued that only by the imposition of a system of import duties can Great Britain force other nations to grant her favorable trade agreements.

Arguments against the proposed reforms are based primarily either on the standard theoretical arguments for free trade and against protection or on the appeal to the experience of the past. It is argued that protection means the creation of groups of special interests; this means inevitably political corruption. The prices of food and raw materials must necessarily be higher. The imposition of import duties, it is said, will lead to increased duties in other countries. Protection will involve a reduction in the volume of trade and, therefore, in the volume of employment. It will, therefore, increase the amount of unemployment at the same time that it increases the cost of living.

One of the most striking arguments of the year was based on the essential difference between the economic positions of Germany and the United States on the one hand and England on the other. It was pointed out that England is vastly superior to both in the volume of her imports and exports. But whereas the United States imports only a small amount of food products and raises practically all her raw material and Germany raises by far the

greater portion of her food products and raw materials, England imports her food, drink, tobacco, cotton, wool, timber, and many other raw materials of manufacturing. It was roughly estimated that forty per cent. of all her imports represent food; and that between twenty and twenty-five per cent. of all the wealth annually consumed in the United Kingdom is represented by imports. Moreover, conditions in England to-day are not at all comparable to those existing in the United States and Germany when they adopted a protective policy. Thus it was argued that the volume of England's trade, and especially the nature of that trade, and her marked contrast with the Germany and the United States of thirty or forty years ago, make comparisons with those countries invalid and the experiment of protection extremely perilous. In this same connection it was pointed out that the foreign trade of such free trade countries as Holland and Belgium has increased as rapidly as that of the great protected countries.

The Association of Chambers of Commerce in a vote on resolutions favoring tariff reform voted fifty chambers for and twelve against, as compared with forty-six for and thirty-one against in 1909.

*FRANCE.* Early in the year a new tariff was adopted, to become effective April 1. This tariff was under discussion during most of the preceding year. It involved several hundred increases and very few reductions in the rates of the general tariff, and a large number of increases in the minimum tariff. It was thus not a wholesale revision, but more in the nature of revision one schedule at a time. The organization of a permanent tariff bureau was considerably advanced in favor by the discussion on the tariff schedules. It was pointed out that general revision involves imminent danger of tariff wars with other countries; this danger may be avoided by revising piecemeal. In the course of this latest revision it was agreed to leave untouched any rates affected by treaty regulating the Franco-Swiss trade; and to grant Canada the benefit of the minimum rates in exchange for her intermediate tariff.

*GERMAN RATES.* Early in the year a general tariff war was threatened between the United States and Germany. The indications were that German rates were to be advanced on February 7, but before this date agreement was reached whereby existing conditions were maintained. The controversy dealt mainly with American meat products. Had Germany increased her rates on these the penalty of twenty-five per cent. *ad valorem* provided by the Payne-Aldrich law would have been imposed on German goods.

In October and November trouble again became acute over the potash trade. American manufacturers of fertilizers have been dependent on German supplies of potash. With a view to conserving the supply, and also perhaps with a view to favoring the potash syndicate, the German government imposed an export duty on potash. This meant a higher price to the American purchasers and led to a stubborn controversy over existing contracts. The American State Department sent Mr. M. H. Davis as special commissioner to bring about an adjustment. The Americans offered to compromise by paying fifty per cent. of the export tax. This was not accepted on the ground that the law could not be abrogated for the benefit of

a special group of purchasers. The export tax if paid in full would have involved an extra charge of \$4,000,000 per year for seven years. Had it not been possible to reach a temporary compromise, as was done early in November, it would have been necessary for the United States to have imposed the maximum tariff against German goods. The final settlement of the matter was still occupying diplomats and traders at the close of the year.

**FREE TRADE CONGRESS.** At the Free Trade Congress which met at Antwerp in August a number of papers were presented by German statisticians and economists showing that the German tariff had caused the prices of wheat and meat to rise more rapidly than in the English markets; that the import duties levied in the interest of the farmers had laid a great burden upon the industrial classes. It was also stated that this rise in the value of agricultural product due to the tariff stimulus was the chief cause of extravagant speculation in agricultural lands. Others pointed out the connection between the protective system and the development of kartels or trusts.

**AUSTRALIA.** Beginning with July the customs of the Commonwealth were to be used to safeguard consumers from adulterated goods. Regulations were sent out to all countries notifying those exporting goods to Australia that such must be marked so as to designate their true nature. Thus, if the soles of shoes are made of paper, or if textiles are composed in part of loadings, these facts must be stated plainly on the packages and the goods.

**TARIFF BOARD.** See **TARIFF**.

**TASMANIA.** An island state of the Australian Commonwealth. Capital, Hobart. Area, 26,215 sq. miles. Estimated population, December 31, 1909, 186,860. For details, see **AUSTRALIA**. The executive authority is vested in a governor, appointed by the British Crown and assisted by a responsible ministry. The legislative power devolves upon a parliament of two elective houses, the Legislative Council and the House of Assembly. Governor in 1910, Major-General Sir Harry Barron; Premier (from June 19, 1909), Sir Elliott Lewis. Tasmanian Parliament was opened on July 12. The legislative programme proposed, among its features, compulsory land purchase, the opening up of Crown lands, tax on unimproved land, an income tax, establishment of wage boards, etc.

**TAWNEY, JAMES A.** See **UNITED STATES AND MINNESOTA**.

**TAXATION. THE CORPORATION TAX. ITS PROVISIONS.** The operation of the corporation tax, the proposed income tax amendment and various minor movements gave a special prominence to the problem of taxation during the year. The corporation tax, which was a part of the Payne-Aldrich tariff measure, provided that "every corporation, joint stock company, or association organized for profit and having a capital stock represented by shares, and every insurance company shall be subject to pay annually a special excise tax equivalent to one per centum upon their entire net income over and above \$5000." It was expected that the returns of the corporations on the basis of which this tax should be collected would be matters of public record, open to the inspection of the public, but in February it was discovered that a law of 1882 prohibits the employment of per-

sons in the District of Columbia by any executive department unless there be specific appropriation therefore by Congress. Those hostile to that portion of the new law making the corporate statements public records open to inspection pointed out that the reports could not be publicly displayed without special clerical work for which a special appropriation was necessary. President Taft recommended to Congress that it appropriate \$50,000 to carry out the publicity clause. The smaller corporations were especially bitter in their opposition to this on the ground that their trade secrets would be revealed and they would become easy victims of unfair competition by larger concerns. Late in the year the Treasury Department made available general summaries of the reports of some large corporations. At the same time it was announced that the returns of any corporation whose stock is listed on any stock exchange or whose stock is advertised by the corporation itself for sale to the public shall be open to inspection by any one on written application; the returns of others may be inspected only for very special reasons.

**ITS CONSTITUTIONALITY** Meanwhile the law had been taken to the Supreme Court to have its constitutionality tested. One of the chief arguments against the constitutionality presented in the public prints was that this is an excise tax on the privilege of doing business in the corporate form; this latter being a privilege derived by franchise from State authorities only, Congress can not impose a burden on it without invading the sovereignty of the States. President Taft in recommending the tax had stated that it is laid "upon the privilege of doing business as an artificial entity and the freedom from a general partnership liability enjoyed by those who own stock." While, therefore, it was argued, a tax on the business of a corporation might be constitutional, a tax on the franchise, that is, on the special privileges which the State confers upon the corporation, is an invasion of the State's rights. It was also contended that this is a special tax on the corporate form of organization, and is, therefore, a discriminatory tax and involves the iniquity of special legislation.

One of the points involved in the question of constitutionality is whether the corporation tax is a direct tax within the meaning of the constitution. Since the constitution requires direct taxes to be apportioned among the States according to population it is evident that if the corporation tax should be declared a direct tax its assessment would be impossible. It seemed that the Supreme Court would not be likely to declare this a direct tax since it is not a property tax, but a special tax on artificial personalities created for the purpose of carrying on business. In the income tax decision of 1895 the Supreme Court had declared direct taxes to be poll taxes, real and personal property taxes and taxes on the income of real and personal property; a corporation tax is none of these. While some argued that the tax could not apply to interstate corporations on the ground that the power of Congress to regulate commerce does not extend to them; others contended that the corporation tax was not levied on the basis of the congressional power to regulate commerce between the States and with foreign nations but under the general power to levy and collect taxes, duties, imposts and ex-

cises. As to the argument that the corporation tax invades the sovereignty of the States, it was pointed out that although in numerous decisions the Supreme Court had upheld the principle that in our dual federal system neither order of government shall tax the agencies or instrumentalities of the other, nevertheless, Justice Brewer was careful to state that "the exemption of State agencies and instrumentalities from national taxation is limited to those which are of a strictly governmental character." Since the corporation has no "governmental character" a tax upon it would not violate the principle of State rights. Thus when the constitutionality of the national inheritance tax was before the Supreme Court, it was argued that, since the State granted and regulated the right to inherit property this tax was an invasion of the sovereignty of States; but the Supreme Court held that the tax was a burden upon the recipient of the inheritance and not upon the power of the State to grant or regulate inheritance privileges. Likewise in upholding the 10 per cent. tax on State bank notes, the tax on the sales of shares of stock, the excise tax on the business of railways and other transportation corporations, and other similar taxes, the Court rejected the argument that these taxes invaded the sovereignty of the State. As to the contention that the law is unconstitutional because it singles out corporations for special taxation, it was answered that this argument would have validity only when it is shown that the classification contained in the law, whereby corporations and joint stock companies doing business for a profit are separated from other businesses, is not a natural classification. Senator Root argued that this classification is natural, since many States are already using it. Ex-Senator J. B. Foraker's brief against the corporation tax was filed December 28.

**CORPORATION TAX RETURNS.** The report of the Commissioner of Internal Revenue showed that 262,490 corporations had submitted returns under the corporation tax. They had \$52,371,626,000 capital stock; \$31,383,952,000 bonded and other indebtedness; and aggregate net income of \$3,125,481,000, or about 6 per cent. on the capital stock. The amount collected under the tax up to October 1 was \$26,872,270. New York corporations numbered 31,132; they had more than one-fifth of the capital stock, one-fourth of the indebtedness, and one-fifth of the net income of all corporations; their total tax amounted to \$5,772,650. Pennsylvania reported 18,362 corporations, and Illinois, 17,908. The corporations were distributed as follows: financial and commercial, 29,812; public service, 24,252; industrial and manufacturing 89,384; mercantile, 54,673; miscellaneous, 64,359. The public service corporations had more than one-third the aggregate indebtedness, and more than one-fourth the total net income of all. Industrial and manufacturing corporations had two-fifths of the aggregate capital stock, less than one-fourth the total indebtedness, and two-fifths the total net income.

**INCOME TAX AMENDMENT.** Since the decision of the Supreme Court in 1895 declaring the income tax provision of the Wilson-Gorman Act of 1894 unconstitutional, there has been more or less agitation for an amendment to the Constitution giving Congress power to levy a tax on incomes. In that decision the Court held

that a tax on the income from land is a direct tax, within the meaning of the constitution, and must therefore be apportioned among the States according to population. This being impossible without violating principles of equity the whole law was discarded. At various times the Democratic party in its national platform pronounced in favor of an income tax amendment. President Roosevelt and President Taft likewise expressed themselves in favor of it. Congress consequently submitted to the States a proposed sixteenth amendment as follows: "Congress shall have the power to lay and collect taxes on incomes from whatever source derived, without apportionment among the several States, and without regard to any census or enumeration." A good deal of controversy was aroused by the clause "from whatever source derived," because this would make it possible for Congress to lay a tax on the income from State and municipal bonds. In a special message to the New York Legislature, Governor Hughes, while favoring the amendment in general, expressed decided opposition to this clause, because it would endanger the borrowing power of the States. Senator Root and others, however, took the view that Congress would not be required by this amendment to levy on State and municipal bonds, and in the exercise of its discretionary power would not be likely to do so. Moreover, the courts, following a long line of precedents, would be likely to forbid the taxation of such bonds by Congress. Professor Seligman made the point that, if income from all such investments is assessed uniformly, the relative values of the investments would remain unchanged; consequently, there is no reason for the special exemption of State and municipal bonds; in his view special exemption would result in a rise in the value of such bonds, thus amounting to a special gift to the States and minor civil divisions.

Of the State legislatures that have considered this proposed amendment the following have voted for ratification: Alabama, Georgia, Illinois, Kentucky, Maryland, Mississippi, Oklahoma, and South Carolina. These have voted against: Massachusetts and Rhode Island. In Louisiana, New York, and Virginia resolutions for ratification passed one branch of the legislature, but failed of passage in the other.

**INHERITANCE TAX.** One of the tendencies of State taxation is increased resort to some form of taxation of inherited property. Such a tax is justified on various grounds; as an excise on the right to succeed to property; as a means of reducing the size of "swollen fortunes"; as in part compensation for taxes evaded in the past; as due to society or the State for favors of one kind or another during the accumulation of wealth; or as fully in harmony with the doctrine that taxes should be levied in proportion to ability to pay. The inheritance tax has come steadily into more general favor both because of the increasing demands of public expenditures and as a substitute for the personal property tax which is being abandoned. All the States now have inheritance taxes except Alabama, Florida, Georgia, Indiana, Mississippi, Nevada, New Mexico, Rhode Island, and South Carolina. These taxes nearly uniformly exempt small sums, especially for the immediate family; they are usually graduated both by amounts and by degrees of relationship.

**NEW YORK LAW.** The New York law of 1910 is the most advanced legislation yet enacted on this subject. It makes the amount of the inheritance to each individual recipient rather than the entire estate the basis of assessment; and it establishes highly progressive rates, especially on sums going to collateral heirs and non-relatives. It first provides exemptions of \$5000 or of \$500 for two groups of immediate family relatives. These groups are respectively (a) father, mother, widow, or minor child; and (b) husband, adult child, brother, sister, son's wife or widow; daughter's husband, adopted child, or lineal descendant. The amounts inherited are divided into five classes: up to \$25,000; in excess of \$25,000 up to \$100,000; in excess of \$100,000 up to \$500,000; in excess of \$500,000 up to \$1,000,000; above \$1,000,000. The rates of taxation on these five classes for both groups of relatives already mentioned are respectively, 1, 2, 3, 4, and 5 per cent. For all amounts bequeathed to non-relatives the rates of taxation are five times as much. Thus an inheritance of more than \$1,000,000 going to a non-relative would be taxed 25 per cent. The law, however, completely exempts religious, educational, and charitable institutions. As with most States inheritance tax laws, this law applies to most of the property of non-residents, thus making double taxation highly probable.

**DOUBLE TAXATION.** The increased resort to the taxation of inheritances by the States led to significant legal entanglements late in the year. The State of Wisconsin began suit against the estate of W. H. Tilford, and Minnesota against that of John S. Kennedy. Both these men had been residents of New York and had owned stock respectively in the Chicago, Milwaukee and St. Paul and the Northern Pacific railroads. Wisconsin demanded \$60,000 and Minnesota \$1,500,000 tax. These cases were expected to test the legality of the inheritance tax as applied to the property of citizens of other States.

The report of the New York State Comptroller issued late in December stated that the new law above described was being circumvented by a change of residence. This was especially true of the owners of large estates, taxed at high rates under the new amendments. The comptroller pointed out that wealthy New Yorkers frequently have domiciles in more than one State; that in any case change of domicile to another State is easy. That all property not situated in New York is easily removed from the operations of the tax. Likewise by forming a corporation in another State and transferring property situated in New York thereto, this property may be removed from the incidence of the tax.

**OTHER STATE LEGISLATION.** Tax commissions were appointed in Illinois, Ohio, and Virginia to investigate the sources of revenue for the States and local civil bodies, and the distribution of tax burdens, and to recommend changes. The Virginia Commission is particularly to investigate the plans for the separation of State and local taxes. The Ohio commission is a permanent one with very extensive administrative and judicial powers over local taxes, and the taxation of railways and public service corporations. The Illinois commission is to report by January, 1911; it included as experts Professors Kinley of the University of Illinois and Merriam of the University of Chi-

cago. The object of the Ohio commission is to centralize the taxes, and equalize tax burdens, as has been done recently in Minnesota, Wisconsin, Michigan, and West Virginia. Oklahoma classified railways for taxation according to ratio of operating expenses to gross receipts; and imposed a license tax on all business corporations, other than insurance and banking companies. Massachusetts required the distribution of the proceeds of the corporation tax on resident shares to the site of the industry in the State instead of residence of shareholder; and required trust companies to pay the usual personal property tax on personality of which they are trustees. Mississippi exempted permanent factories for five years after construction. Delaware levied a tax on telephone companies, based on miles of wire and number of transmitters. Oregon began the taxation of persons or companies developing water power. Minnesota imposed a tax on elevators based on the number of bushels of grain handled.

**THE INTERNATIONAL TAX ASSOCIATION.** The fourth annual conference of this association was held at Milwaukee, August 30 to September 2. The special subjects for consideration were the general property tax, railway taxation, and the experiences of Iowa, West Virginia, Kentucky and Ohio in matters of taxation. Special papers were read by Professor Bullock on the property tax in Switzerland and by Professor H. C. Adams on the income tax as a substitute for the personal property tax. A special committee appointed at the 1909 session brought in report on the causes of failure of the general property tax. The report of this committee and the discussion in general were severely derogatory to the personal property tax. As has been the case for many years when tax officials or economists have spoken on this tax, it was declared to be unsound both in theory and in practice. This conference seemed to develop considerable favor for the income tax as a substitute for the personal property tax. It may be doubted, however, whether an income tax as usually administered by American Commonwealths would prove more effective in taxing intangible property than the personal property tax.

**TAX ASSOCIATION, INTERNATIONAL.** See TAXATION.

**TAXONOMIC BOTANY.** See BOTANY.

**TAYLER, ROBERT WALKER.** An American jurist, died November 26, 1910. He was born in Youngstown, Ohio, in 1852, and graduated from Western Reserve College in 1872. From 1873 to 1875 he was Superintendent of Schools at Lisbon, O., and in 1875-6 edited *The Buckeye State*. In 1877 he was admitted to the bar and from 1880 to 1886 was prosecuting attorney for Columbia county. He was elected to Congress in 1895 and served until 1903, representing the 18th Ohio District. He declined renomination for the 58th Congress in 1905, and was appointed United States District Judge in the Northern District of Ohio. While in Congress he conducted the famous polygamy trial of Representative Roberts of Utah. He was prominent in settling the long-standing street railway war in Cleveland and was widely known as an arbitrator in industrial disputes.

**TAYLOR, HORACE A.** An American politician and public official, died August 5, 1910. He was born in St. Lawrence county, New York,

in 1835. At the age of ten his family removed to Wisconsin. His first business experience was in the publishing of a newspaper. He was later chosen Lumber Commissioner of Wisconsin, and was for a time chairman of the Republican State Committee. He held many Federal offices, among them the consulate at Marseilles, France, railroad commissioner in Washington, and Assistant Secretary of the Treasury. While consul at Marseilles he conceived the plan of removing the remains of John Howard Payne, author of *Home, Sweet Home*, from their resting place at Tunis to the United States. With the assistance of W. W. Corcoran, the philanthropist, who furnished the money, the body was removed and reinterred in Oak Hill Cemetery in Georgetown, D. C. He resigned as Assistant Secretary of the Treasury in 1907. Mr. Taylor was identified with the conservative branch of Wisconsin politics, but gave up active work in political matters because he could not support the policies of Senator La Follette. For many years he was identified with the management of the *State Journal*, a conservative Republican organ.

**TEACHERS' PENSIONS.** See EDUCATION IN THE UNITED STATES.

**TEACHERS' SALARIES.** See EDUCATION IN THE UNITED STATES.

**TECK, Prince FRANCIS JOSEPH LEOPOLD FREDERICK.** The brother of Queen Mary of England, died October 22, 1910. He was born in 1870, the second son of the third child of Francis, the first Duke of Teck and Count of Hohenstein. His mother was the Princess Mary Adelaide of England, sister of the late Duke of Cambridge. He was born in Kensington Palace in 1870 and in 1890 entered the British army, serving in Egypt and in the Boer war. He retired in 1902 with the rank of major.

**TELEGRAPHS.** See paragraphs on subject in articles on countries.

**TELEGRAPHY.** The merger of telephone and telegraph interests in 1909 demonstrated its advantages to both arts in 1910. The very extensive long-distance telephone system of circuits, all of a very high order of construction, was thus made available for telegraphic use.

An improved quadruplex apparatus was put into service which has made quadruplex working possible over the longest and most difficult lines. The essential factors in this result are a quick-acting pole changer which minimizes the period of current interruption and a neutral relay provided with a holding coil which is energized by the discharge of an impedance coil during the intervals of no magnetism.

The introduction of the "night letter" service met with great popularity and added a new and important source of revenue to the industry.

**TELEGRAPHY, WIRELESS.** See WIRELESS TELEGRAPHY.

**TELEPHONY.** As in 1909, much of the energy of the telephone industry was devoted in 1910 to problems of organization, the coordination of telephone and telegraph operation and to improving public relations. Important advances in the art were achieved, especially in the field of long-distance communication. The speaking range from the Atlantic coast was pushed westward to Denver with conversation from coast to coast looming up as a near probability. Progress of this type was accelerated by the invention of a new type of Pupin loading coil which permits the extensive use of the

phantom circuit in long-distance work. The new coil provides loading for two physical circuits and one phantom.

Automatic telephony made distinct gains, especially in combination with manual systems. A new type of manual switchboard which automatically performs all operations except the receiving of the call and the making of the plug-cord connection has been installed and successfully used in several western exchanges.

The use of the telephone in train dispatching was extended widely and with uniform success. The high efficiency of the telephone equipment and the increasing difficulty of securing reliable telegraph operators bids fair to turn this entire field over to the telephone within a few years.

The most noteworthy telephonic invention of the year, and possibly of a decade, is a multiplex system for which patents were issued to Major George O. Squier of the U. S. Signal Corps. Only meagre details of the system have been published but it is described as a combination of wire telephony and wireless in which ether vibrations serve as the agency of transmission and the wire as a guide. By suitable tuning, ten or more messages may be superposed on a single wire. The inventor claims that the new system is readily applicable to all existing types of installation and that it can be operated effectively with a single wire as well as a circuit.

The system is said to have been exhaustively tested between the laboratory of the Signal Corps and that of the Bureau of Standards in Washington. The announcement of the invention was received by the telephone industry with natural skepticism, but the high scientific standing of the inventor, which is fully established by other inventions and researches, is generally accepted as a guarantee of its authenticity. Major Squier has perpetually dedicated his patent rights to the government and people of the United States.

**TELEPHONY, WIRELESS.** See WIRELESS TELEPHONY.

**TELESCOPES.** See ASTRONOMY.

**TELLURIUM.** See ATOMIC WEIGHTS.

**TEMPEL COMET.** See ASTRONOMY.

**TEMPERATURE.** See METEOROLOGY.

**TEMPERLEY, H. W. V.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**TEMPLEMAN, WILLIAM.** See CANADA, *Government and History*.

**TENNESSEE.** One of the East Central Division of the United States. Its area is 43,022 square miles. Its capital is Nashville.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 2,184,789 as compared with 2,020,616 in 1900 and 1,767,518 in 1890. The increase in the decade from 1900 to 1910 was 8.1 per cent. The State ranks seventeenth in point of population, whereas in 1900 it ranked fourteenth. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** Coal, iron and copper are the chief mineral products of the State and there has been a great increase in their production in recent years. The coal produced in 1909 amounted to 6,328,073 tons as compared with a production in 1908 of 6,199,171 tons. According to estimates of the United States Geological Survey the year 1910 was not satisfactory from the coal producers' standpoint.

The markets were not equal to the production, in consequence of which prices were low. The production was about the same as in 1909. There were produced in 1909, 19,207,747 pounds of copper, as compared with a production of 19,710,103 pounds in 1908. According to the United States Geological Survey, the estimate of the production of 1910 showed a decrease from that of 1909. This is due to the fact that the sulphuric acid plants operated by both companies in the Ducktown district were not able to handle the fumes produced by the smelting plants when they were operated at full capacity. The successful recovery of acid at these plants has added greatly to the value of the ores mined in the district. The State ranks eighth in the production of iron. The value of this in 1908 was \$876,007 and there were produced 635,343 long tons. There were manufactured in 1908, 290,826 tons of pig iron. Zinc is mined in small quantities and in 1909 695 tons of spelter were produced. Gold is found in small quantities. The value of the product in 1910 was \$3514. There were produced also 75,714 fine ounces of silver as compared with a production of 65,300 fine ounces in 1909. Phosphate rock is mined in large quantities. Other mineral products of the State are building stone, lime, sand and gravel, and mineral waters.

**AGRICULTURE.** The acreage, production and value of leading crops in 1909 and 1910 are given in the following table:

	Acreage.	Prod. bu.	Value.
Corn, 1910.....	3,720,000	96,348,000	\$53,955,000
1909.....	3,575,000	78,650,000	55,055,000
Winter wheat, '10	910,000	10,647,000	10,434,000
'09	800,000	8,320,000	9,568,000
Oats, 1910.....	200,000	4,600,000	2,116,000
1909.....	200,000	4,000,000	2,120,000
Barley, 1910....	1,000	23,000	18,000
1909.....	1,000	24,000	19,000
Rye, 1910.....	8,000	88,000	81,000
1909.....	8,000	86,000	83,000
Buckwheat, 1910	1,000	15,000	13,000
1909.....	1,000	15,000	11,000
Potatoes, 1910..	30,000	2,400,000	1,560,000
1909.....	30,000	2,250,000	1,598,000
Hay, 1910.....	445,000	637,000a	8,536,000
1909.....	450,000	675,000	8,640,000
Tobacco, 1910...	85,000	64,600,000b	5,426,000
1909.....	73,000	53,290,000	4,156,000
Cotton, 1910...		305,000c	
1909.....		246,650	

a Tons' b Pounds c Bales.

**FINANCE.** The report of the State Treasurer for the biennial period of 1909-10 showed a balance in the treasury on December 20, 1908, of \$1,132,900. The total receipts for the period amounted to \$7,243,099 and the total disbursements to \$8,058,730, leaving a balance in the treasury December 30, 1910, of \$317,269.

**CHARITIES AND CORRECTIONS.** The State charitable institutions include the Hospital for the Insane, Middle Tennessee, Hospital for the Insane, West Tennessee, the Tennessee School for the Deaf and Dumb, the Tennessee School for the Blind, the Blind Girls' Home, Confederate Soldiers' Home, and the State Prison. The expenses of the State Prison during 1910 amounted to \$465,743. The total expenditures for the other institutions mentioned above was \$550,388.

**POLITICS AND GOVERNMENT.** There was no meeting of the State legislature in 1910 as the sessions are biennial and the last was held in 1909. The next session begins January 2, 1911. On January 1, the law prohibiting the manufacture of liquor in the State, went into effect. On April 13, Governor Patterson

pardoned Colonel Duncan B. Cooper, who with his son, Robin Cooper, had been found guilty of killing former United States Senator Edward W. Carmack on November 9, 1908. Colonel Cooper and his son were sentenced to be imprisoned for twenty years. An appeal was at once taken and on April 13 the Supreme Court of the State voted three to one confirming the judgment of the lower court as to Colonel Cooper and ordering a trial in the case of his son. Governor Patterson immediately, before reading the opinion and before the Coopers had left the capitol, pardoned the father, stating as his reasons that in his opinion neither of the defendants was guilty. He declared that they had not had a fair and impartial trial and were convicted contrary to law and evidence. Colonel Cooper was a close personal and political friend of Governor Patterson's, and it was said that the latter's victory over Senator Carmack in the primaries for the governorship, which were held not long before the killing of Senator Carmack, was due partly to Cooper's influence, the latter being one of his principal advisers and a member of his "Kitchen Cabinet." Governor Patterson was at that time the leader of the anti-Prohibitionist forces and Senator Carmack was head of the Prohibition wing. The latter after his defeat for the gubernatorial nomination became editor of *The Tennessean*, and had published editorial articles of a sarcastic nature, which deeply offended Cooper and resulted in the killing of Senator Carmack by Colonel Cooper.

Governor Patterson's administration was notable for the number of pardons which he issued. In three years and two months he granted 956 pardons, and these 152 were given to persons convicted of murder. The governor's action in granting these pardons and especially in pardoning Colonel Cooper, caused great indignation throughout the entire State, except among those who were strong partisans of the governor and Colonel Cooper, and it resulted in a strong movement against the former's re-election. This was accelerated by the charge made by three members of the Supreme Court that the governor had attempted to influence the Court in its opinion in the Cooper case. On August 4 judicial elections were held which revealed how wide was the split in the Democratic party. Nominees for judicial offices who were known as the choice of Governor Patterson had been placed in nomination in a State primary election held under rules which were severely denounced, but a remonstrant convention was held and an independent Democratic ticket put in the field. The Republican State Committee endorsed this ticket. After a spirited campaign in which Governor Patterson worked with great energy for his candidates, they were defeated by majorities ranging from 43,000 to 47,000. On August 16 the Republican party held its nominating convention at Nashville and named Captain B. W. Hooper for governor. Three days before a convention of the Independent Democrats was to have been held on September 14, Governor Patterson withdrew his name as a candidate of the "regular" Democrats in the hope that both factions of the party might be induced to unite on some other man. However, the delegates were already pledged to Hooper. The convention of Independent Democrats would not listen to overtures from the "regulars." Feeling was so strong that Senator Taylor who had come from Washington to endeavor to bring

about unity would not enter the convention hall for fear of being hissed from the platform. The Independent Democrats in their convention unanimously voted to endorse the Republican nominee. This action was greeted with great enthusiasm. A great company of old Confederate soldiers, carrying both Confederate and Union flags and shouting for Hooper, marched through the streets. The "regular" Democrats held another convention on October 6, and nominated Senator R. L. Taylor for governor. The chief issue of the Independent Democrats and Republicans was the maintenance and the enforcement of the laws of the State, especially the prohibition and election laws, and the destruction of the Patterson "machine." The election on November 8 resulted in the success of the Republican and Independent Democratic fusion and Captain Hooper was elected by a plurality of 12,325 over Senator Taylor. The vote was 133,999 for Hooper and 121,674 for Taylor. With the exception of Captain Hooper the State ticket elected was Democratic Colonel B. A. Enloe, the fusion candidate for railroad commissioner, receiving a slightly larger majority than Hooper. The legislature of 1911 will elect a successor to Senator Frazier, whose term expires in that year. Its complexion will be "regular" Democrats 64, Independent Democrats 34, Republicans 34. The fusion will extend to the election of an Independent Democrat to be United States Senator and other State officers and to prevent the repeal of any reform legislation.

**OTHER EVENTS.** In October the Standard Oil Company of Indiana was indicted on 1528 counts for accepting rebates. The fines involved ranged from \$1,528,000 to \$30,560,000.

On November 26 the Supreme Court handed down a decision in the case of J. W. Kelly & Company of Chattanooga, against the State, in which it held that the act of the legislature of 1909, prohibiting the manufacture of whiskey in Tennessee, was constitutional. The court also held that the shipment of whiskey out of the State was not in violation of the prohibition law, as it would be interfering with interstate business. Kelly & Company had been indicted for shipping whiskey to New York.

**STATE OFFICERS.** Governor, Benjamin W. Hooper; Secretary of State, H. W. Goodloe; Treasurer, R. E. Folk; Commissioner of Agriculture, John Thompson; Superintendent of Public Instruction, R. E. Jones; Comptroller, Frank Dibrell; Adjutant-General, Turley Brown; Attorney-General Charles T. Cates; Commissioner of Insurance, R. E. Folk—all Democrats except Hooper.

**SUPREME COURT.** Chief Justice, John K. Shields; Justices, W. D. Beard, Grafton Green, M. M. Neil and D. L. Lansden. Clerk, Joe J. Roach—all Democrats

**STATE LEGISLATURE, 1911.** Senate, Democrats, 25; House, 74; joint ballot, 99; Republicans, Senate, 8; House, 25; joint ballot, 33; Democratic majority, Senate, 17; House, 49; joint ballot, 66.

**TERRELL, EDWIN HOLLAND.** An American lawyer and diplomatist, died July 1, 1910. He was born at Brookville, Ind., in 1848 and graduated from De Pauw University in 1871. He afterwards studied law at Harvard College and in Europe. He practised law in Indianapolis from 1874 to 1877, when he removed to San Antonio, Texas. He took an active part in politics and

was delegate to the Republican National Convention in 1880, 1888, and 1904. From 1894 to 1900 he was a member of the Republican State Executive Committee of Texas. He was appointed American Minister to Belgium in 1889, serving until 1893. In 1889-90 he was plenipotentiary to the Slave Trade Conference at Brussels. In the latter year he was also a delegate to the Customs Tariff Conference. He conducted negotiations for the United States with the six Powers holding possessions in the Congo Basin and secured from them the protocol of December 22, 1890, which granted the United States and its citizens full commercial privileges in the entire Congo Basin. In 1891 he was a member of the Commission which revised the Berlin Treaty of 1885 and in the same year he was plenipotentiary to negotiate a commercial treaty with the Congo Free State. He was commissioner to and vice-president of the International Monetary Conference in Brussels in 1892 and negotiated, or assisted in drafting in conference three treaties subsequently ratified by the Senate. He was interested in financial affairs in San Antonio.

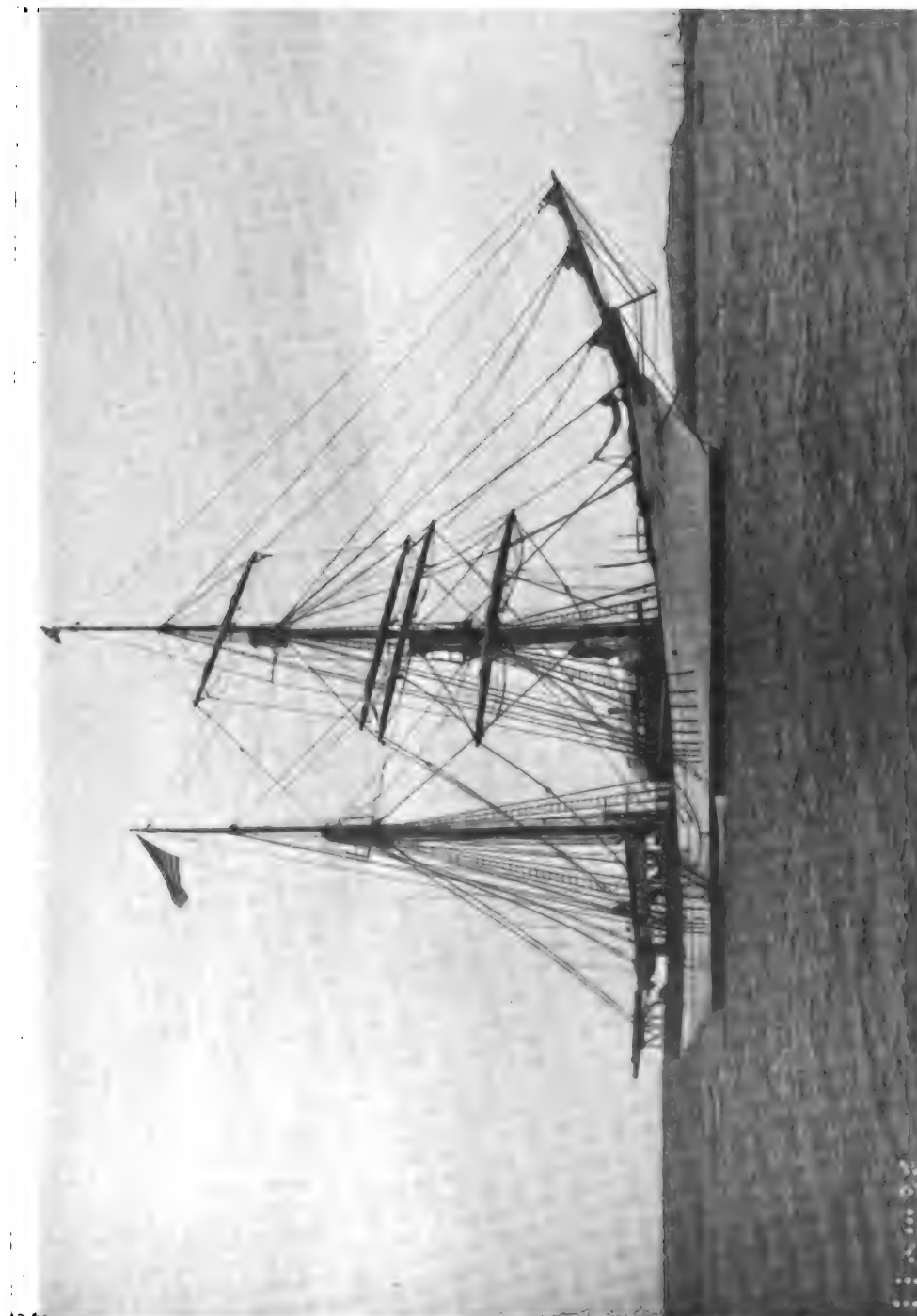
**TERBIUM.** See **ATOMIC WEIGHTS.**

**TERHUNE, Mrs. M. B.** See **LITERATURE, ENGLISH AND AMERICAN, Biography.**

**TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS.** See **TRUSTS.**

**TERRESTRIAL MAGNETISM.** After some preliminary cruises in the Pacific Ocean, 1905-08, on a chartered vessel, the *Galilee*, under the auspices of the Carnegie Institution of Washington, the conclusion was reached that a magnetic survey of the oceans could be accomplished more expeditiously, as well as economically, by the construction of a special vessel in which practically all iron and steel might be avoided; thus came into being a vessel, the *Carnegie*, which though in commission only a little more than a year has already, by the results obtained, justified her existence.

The *Carnegie* is a wooden built, brigantine rigged vessel of the following dimensions: Length over all, 155½ feet; length on load water-line, 128½ feet; beam, moulded, 33 feet; mean draft about 13½ feet; displacement, 568 tons; registered tonnage, 246. The chief materials used are white oak, yellow pine, Oregon pine and teak; the fastenings consist of locust treenails, copper and Tobin bronze bolts and composition spikes. There are four manganese bronze anchors of total weight 5500 pounds, with no anchor chains, but instead three 11-inch cables, each of 120 fathoms. She is primarily a sailing vessel with a total spread of 12,000 square feet of plain sail; all metal work on spars, rigging and blocks is of bronze and gun-metal. A certain amount of auxiliary power has been provided for making and leaving ports and for use in calms; this is furnished by a 150 indicated horsepower producer gas engine, built almost wholly of bronze, copper and non-magnetic manganese steel and capable of driving the vessel at a speed of six knots in calm weather. The engine was placed at such a distance from the mounts of the magnetic instruments that the very small amount of steel which had to be used for the pistons and the cams will not have a measurable effect. Henry J. Gillow of New York was the architect and the builders were the Tebo Yacht Basin Company (Wallace Downey, manager) of Brooklyn. The *Carnegie* is not only the first strictly non-mag-



NON-MAGNETIC SHIP "CARNEGIE"

34

netic vessel, but also the first sea-going one equipped with a producer gas engine. She went into regular commission in September, 1909, and made a cruise of 8000 miles in the North Atlantic, embracing the following ports: Brooklyn, St. John's (N. F.), Falmouth (England), Madeiras, Bermuda; she returned to Brooklyn February, 1910, weathering successfully the very severe gales of January and February of that year.

In June, 1910, the *Carnegie* started out from Brooklyn, under the command of William J. Peters as before, this time bound on a three years' circumnavigation cruise covering the Atlantic, the Indian and the Pacific Oceans. Proceeding along the South American Coast, she visited en route Porto Rico, Para (mouth of the Amazon), Rio de Janeiro, Montevideo and Buenos Ayres, leaving the latter port February 13 bound for Tristan da Cunha and Cape Town, where she is expected towards the end of March. The endeavor is made to secure magnetic observations on the oceans at points about 150 miles distant, on the average, as well as to make the necessary shore control observations at the ports of call. It has already been found that the very best "equal variation charts," now in use, are erroneous from 1° to 3°, the error frequently being in the same direction for stretches of several thousand miles; its effect, in navigation, accordingly is cumulative when the mariner, for one reason or another, must rely solely upon the compass and the log. However, the leading hydrographic offices are already revising their charts according to data obtained by the *Carnegie*. Fortunately, owing to the absence of disturbing influences on this vessel and because of the superior instrumental equipment and the skill of the observing staff, the information secured can be made known with a promptness hitherto impossible. The scientific staff with the commander is composed of seven men and the crew of 15, making in all 22 persons aboard.

In addition, however, to merely finding out how the compass bears on the oceans, the dip of the needle and the strength of the magnetic force are measured aboard the *Carnegie*. While the knowledge of the dip and force is chiefly for scientific purposes, nevertheless, there is likewise a practical application; for these quantities must be known in order to apply properly the correcting or adjusting devices required to make a compass on a steel vessel point with approximate correctness, at least.

Observations similar to those on the *Carnegie* are being made by land exploring parties also operating under the direction of the Carnegie Institution of Washington through its "Department of Research in Terrestrial Magnetism." These parties have already, since 1905, visited regions in nearly all parts of the earth. The attempt is being made, with the cooperation of the existing institutions engaged in magnetic work, to complete a magnetic survey of the globe by about 1915 to 1920.

[For further information the American reader may be referred to the annual reports and publications of the above named Department, also to those of the United States Coast and Geodetic Survey, especially "Principal Facts Relating to the Earth's Magnetism," and United States Magnetic Tables and Magnetic Charts for 1905.]

**TERRESTRIAL TEMPERATURES.** See METEOROLOGY.

**TETANUS AND THE FOURTH OF JULY.** Ac-

cording to statistics compiled annually by the *Journal of the American Medical Association*, there was a gratifying decrease in the number of tetanus cases incident to the celebration of the Fourth of July in 1910. There were only 72 cases of tetanus, with 67 deaths, reported throughout the United States, less than half the number for 1909, and fewer than the number for any year since the compilation of these statistics began eight years ago. Attention is called to the significant fact that blank cartridge wounds were correspondingly few; 450 in 1909 as against 225 last year. The wounds from the blank cartridge result in a greater percentage (12.7 per cent.) of deaths than those from loaded firearms (10 per cent.). Sixty-four of the total 72 tetanus cases of 1910 were due to blank cartridge wounds. Tetanus antitoxin was given in 25 cases; in none, however, before active symptoms had set in, and no recoveries are reported from its use. The prophylactic value of antitetanic serum being so thoroughly established, few cases of tetanus having been known to occur after its use as a preventive, it was a matter of regret that this agent was not more generally employed in this way. The mortality was very high this year being 93.1 per cent.

In addition to 67 deaths from lockjaw, 64 persons were killed by fireworks, making a total of 131, or 84 less than 1909. Nineteen persons were killed outright by firearms, 11 by explosions of powder, bombs and torpedoes, 3 by cannon, and 3 by various causes, while 26 (mostly little girls) were burned to death. The total of all injuries from fireworks was 2923, a little more than half the number in 1909. The cause for this better showing was undoubtedly due to the general adoption of restrictive or prohibitive measures in regard to the sale and use of fireworks throughout the country. The figures also show clearly that prohibitive ordinances were far more effective than restrictive measures. Washington, Baltimore, Trenton and Cleveland, enforcing prohibitive ordinances, had only 7 injuries among them. New York, Boston, Chicago, Toledo, and other cities under restrictive measures, while they showed a much lower number of casualties, still had a regrettably large number of deaths and injuries.

**TEXAS.** One of the West South Central Division of the United States. It is the largest State in the Union, having an area of 265,896 square miles, of which 3498 square miles are water surface. Its capital is Austin.

**POPULATION.** The population of the State in 1910 according to the Thirteenth Census was 3,896,542 as compared with 3,048,710 in 1900 and 2,235,527 in 1890. The increase in the decade 1900 to 1910 was 27.8 per cent. The State ranks fifth in point of population whereas in 1900 it ranked sixth. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** Texas is one of the most important States in the production of petroleum although there has been a notable decrease in the amount produced in recent years. The production of 1909 was 9,534,467 barrels valued at \$6,793,050 as compared with a production of 11,206,464 barrels valued at \$6,700,708 in 1908. The chief producing fields are the Humble, Saratoga, Sour Lake and Spindle Top fields in coastal Texas and the Corsicana, Powell and Henrietta fields in northern Texas. Texas

ranks fourth in the production of petroleum, being surpassed only by California, Oklahoma and Illinois. The State is an important producer of coal. In 1909 there were mined 1,824,440 short tons as compared with 1,895,377 short tons in 1908. A small amount of copper is produced. Gold and silver are also found in the State. The silver production in 1909 was 365,854 fine ounces as compared with a production of 408,100 fine ounces in 1908. The gold products of the State were valued in 1908 at \$2,068,735. There were produced also large quantities of stone, quicksilver and lime. Other mineral products are coal products, asphalt, sulphur, salt, sand, natural gas, and sand-lime brick.

**AGRICULTURE.** The acreage, production and value of leading crops for 1909 and 1910 are given in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910...	8,800,000	181,280,000	\$114,206,000
1909...	8,150,000	122,250,000	92,910,000
Win. wheat, '10	1,252,000	18,780,000	18,404,000
09	555,000	5,050,000	3,959,000
Oats, 1910...	695,000	24,325,000	11,433,000
1909...	615,000	11,500,000	7,130,000
Barley, 1910...	5,000	150,000	135,000
1909...	4,000	78,000	78,000
Rye, 1910...	4,000	46,000	47,000
1909...	4,000	45,000	55,000
Rice, 1910...	264,800	8,738,000	5,942,000
1909...	291,000	9,894,000	7,717,000
Potatoes, 1910	60,000	3,060,000	3,366,000
1909	60,000	3,000,000	3,180,000
Hay, 1910...	618,000	711,000a	8,532,000
1909...	618,000	587,000	6,985,000
Tobacco, 1910...	700	420,000b	105,000
1909	1,000	650,000	170,300
Cotton, 1910...		3,140,000c	
1909		2,522,811	

a Tons. b Pounds. c Bales.

**EDUCATION.** The number of pupils of school age in the State in 1910-11 was 968,269. The total enrollment, according to figures for 1908-9, the latest available, in the public schools was 833,631 and the average daily attendance was 557,356. There were in the State in 1910, 20,098 teachers in the public schools, of whom 587 held third grade certificates, 10,883 second grade, 5274 first grade, and 2985 permanent. The remaining 269 were special teachers. There are three classes of school districts, common, independent, and cities and towns which have assumed control of their schools. There are in the State 7500 common school districts, 566 independent districts and 114 cities and towns which have assumed control of their schools. A decision of the Supreme Court in 1908 invalidated a great number of independent districts, and resulted in the adoption of some important constitutional amendments. Formerly all school taxes required a two-thirds vote for levy, the constitutional limit in common school districts being 20 cents per \$100 valuation. Under the new amendment common school and independent school districts may vote a maximum of 50 cents on \$100 valuation of property for maintenance, or for maintenance and bond purposes by a majority vote. Cities and towns having charge of their schools must still vote taxes by a two-thirds vote. The statutes limit these cities and towns to 50 cents for maintenance. The legislature of 1911 will be asked to submit an amendment removing the two-thirds limitation imposed by the constitution upon cities and towns having charge of their schools. The legislature will also be asked to enact laws providing for rural high schools and for the increase

of the tenure of office of all educational boards and officers, and to provide for the establishment of county boards of education.

**CHARITIES AND CORRECTIONS.** The only State charitable and correctional institutions are a Reformatory situated at Gatesville, and an Orphan Asylum at Corsicana.

**FINANCE.** The report of the State treasurer for the fiscal year 1910 showed a balance on hand September 1, 1909, of \$1,743,208. The total receipts for the year were \$8,053,491 and the disbursements were \$4,364,607 by disbursements from the State controller and \$4,017,776 by transfers to school fund, leaving a balance on hand September 1, 1910, of \$1,424,641.

**POLITICS AND GOVERNMENT.** There was no regular session of the State legislature in 1910 as the sessions are biennial and the last was held in 1909. There was, however, an extraordinary session called by Governor Campbell in July, to act upon various measures. The most important of these were concerned with prohibition legislation. On August 3, the governor sent a message to the legislature recommending the enactment of a radical anti-saloon law which, if put into effect, would have made the State practically Statewide prohibition. Among the measures was one prohibiting the granting of liquor licenses within ten miles of any State educational institution supported in whole or in part by appropriations from the State's revenue. Another bill prohibited the sale of liquor in less quantity than one quart and provided that it should not be drunk on the premises where it was sold. The House passed these measures by a large majority, but on August 12 they were defeated in the Senate by a vote of 16 to 14.

The legislature passed a bill, remodeling the whole system of penitentiary management, so as to effect reforms. This followed an investigation which disclosed abuse, mismanagement and atrocities in some instances. The special session also passed a bill providing for the complete protection of unsecured creditors in railroad receivership sales. The International & Great Northern railroad, with a large mileage in Texas, in receivership was on the verge of emerging therefrom and repudiating nearly \$3,000,000 in unsecured claims, including bills for supplies, material and labor, and final court judgments. An agitation at once began to repeal or amend that at the regular biennial session which commences on January 10, 1911. Still another law enacted at the special session is that creating the State Insurance Board which has complete jurisdiction over fire insurance rates in Texas. No fire insurance rate can be changed without the consent of the board and it is authorized to raise or lower rates as it sees fit following public hearings. Its powers are as absolute as those of the Texas Railroad Commission. The special session passed other laws.

**CONVENTIONS AND ELECTIONS.** Texas is so strongly a Democratic State that the nomination of candidates by that party is equivalent to an election. The party in 1910 was sharply divided on the issues of prohibition and in the State primaries held in July Col. Oscar B. Colquitt an anti-Prohibitionist was nominated for governor by a plurality of votes.

The Democratic State Convention met on August 9 and proclaimed the nomination of Mr. Colquitt for governor. The convention endorsed Senator J. W. Bailey for President in 1912.

Amendments favoring prohibition, and the prohibition of public officials from accepting fees from corporations while in the service of the State, were tabled. Another amendment endorsing Senator Culberson for having voted in favor of free lumber and free iron ore during the passage of the Payne-Aldrich tariff bill, was also tabled.

The Republican State Convention met at Dallas on August 10, and nominated J. O. Terrell for governor. The platform indorsed the administration of President Taft, opposed the submission of a prohibition constitutional amendment to the voters, indorsed local option and reaffirmed the Republican national platform of 1908.

In the election held November 8, the Democrats elected their candidate, Mr. Colquitt, governor by a plurality of 147,866. The total vote was 173,993 for Colquitt and 26,107 for Terrell.

As the result of the primary election in July, two-thirds of the members of the legislature were instructed to vote for the submission of a Statewide prohibition amendment to the people. This amendment will be voted on July 22, 1911. The legislature is Democratic with the exception of two Republicans. All Democratic Senators and Representatives were instructed in the primaries to vote for the re-election of Charles A. Culberson to the United States Senate.

**OTHER EVENTS.** On May 24 the State Court of Criminal Appeals sustained the validity of the law prohibiting betting on horse-racing and operating pool rooms. It was held to be unlawful to bet on horse races in the State or to place bets within the State on races run in another State or even in a foreign country. In the case at issue the race was run at Juarez, Mexico, and the bet was made between a citizen of Texas and a citizen of Tulsa, Oklahoma, and was made by telegraph. The case was a test case and upholds the constitutionality of the law.

On July 30, a riot broke out at Slocum, 15 miles from the town of Palestine and at least 20 negroes were killed by a mob of white men. The cause of the outbreak was not clear and seemed to have been merely a manifestation of hatred for negroes on the part of the white inhabitants. It was at first reported that negroes had planned to kill the whites and burn their homes and that they were heavily armed. It was later shown that these reports had no foundation. The only cause assigned was that a negro was insolent to a white man who had indorsed his note and was obliged to pay it. State rangers promptly quelled the outbreak. The white men arrested were taken by local peace officers and State rangers. They will be tried in Anderson county, at Palestine, the home of the retiring governor, T. M. Campbell, who detailed a special assistant attorney-general to prosecute the white men.

For an account of the troubles with Mexico resulting from the lynching of an alleged Mexican citizen by inhabitants of Texas, see section *Foreign Relations* under the article UNITED STATES.

**STATE OFFICERS.** Governor, O. B. Colquitt; Lieutenant-Governor, A. B. Davidson; Secretary of State, \_\_\_\_\_; Treasurer, Sam Sparks; Comptroller, W. P. Lane; Superintendent of Public Instruction, F. M. Bralley; Land Commissioner, J. T. Robison, Attorney General, J. P. Lightfoot; Commissioner of Agriculture, E.

R. Kone; Commissioner of Insurance, F. C. von Rosenberg; Commissioner of Public Lands, J. T. Robinson—all Democrats.

**SUPREME COURT.** Chief Justice, Reuben R. Gaines; Associate Justices, Thomas J. Brown and F. A. Williams. Clerk, F. T. Connerly—all Democrats.

**STATE LEGISLATURE, 1911.** Democrats, Senate, 30; House, 109; joint ballot, 139. Republicans, Senate, 1; House, 0; joint ballot, 1.

**TEXAS, UNIVERSITY OF.** An institution of higher learning at Austin, Texas, founded in 1883. The number of students in all departments for the year 1910-11 was 3043, while the faculty numbered 132. Among the changes in the faculty during the year were the loss by resignation of Dr. Alvin S. Johnson, professor of economics; Dr. A. E. Austin, professor of chemistry in the medical department; Dr. F. E. Farrington, professor of the art of teaching; and by death, Dr. George P. Garrison, professor of history. Dr. Lewis H. Haney was appointed to succeed Dr. Johnson; Dr. George F. Gracey to succeed Dr. Austin, and Dr. Bird T. Baldwin to succeed Dr. Farrington. During the year 500 acres of land, worth \$25,000, were donated to the University for instruction purposes by George W. Brackenridge. A bureau of Economic Geology, with laboratory for testing the commercial value of lignites, coals, oils, clays, etc., was organized during the year. The University has a department of extension which carries on instruction by correspondence. The students in this course in 1910 numbered 334. The requirement of five years' courses for admission to the Medical Department went into effect in the fall of 1910. The president is S. E. Mezes.

**TEXTILE MANUFACTURING.** The annual report of mill construction for 1910 compiled by the *Textile World Record* stated that two hundred and seventy-four new textile mills were built or under construction in the United States during the year. In view of the adverse influences that have affected the two principal branches of the trade, cotton and wool manufacturing, this was considered a very favorable showing. As will be seen from the accompanying table the total number of new mills was very little less than in 1909, and was larger than in 1908 or 1907:

COMPARISON OF NEW MILL CONSTRUCTION  
FOR 1905-1910

	Cotton	Woolen	Knitting	Silk	Misc's	Total
1910.....	67	31	113	34	29	274
1909.....	80	47	105	37	20	289
1908.....	47	23	94	33	25	222
1907.....	64	25	83	51	39	262
1906.....	74	56	103	36	34	303
1905.....	33	38	79	53	42	245

The high price of raw cotton naturally had its effect while wool manufacturers have been troubled by uncertainties due to a political agitation that, affecting all branches of the dry goods trade, has had a particularly severe effect on the trade in wool goods.

The table shows that the knitting branch of the business exhibited an increase over 1909, the cotton and silk branches fell slightly behind the 1909 record, while the largest decrease was in woolen and worsted mills, which numbered 29 in 1910, as compared with 47 in 1909.

The development in cotton manufacturing is

clearly shown by the distribution of new spindles and the new mill construction.

The number of new knitting mills in 1910 showed an increase due to the constantly increasing uses for which knit fabrics are being developed. There were 113 new knitting mills in 1910 as compared with 104 in 1909. Most of these new mills were located in the Middle States, 55 being in Pennsylvania, 13 in New York and 4 in New Jersey. Pennsylvania also ranked first in knitting mill construction in 1909.

#### NEW COTTON MILLS, 1910

New England—			
Connecticut .....	No. Spindles	Looms	
Massachusetts .....	3	25	
Rhode Island.....	13 408,276	5,412	
Vermont.....	9 25,000	30	
	1 35,438	650	
	26 468,714	6,117	
Southern States—			
Alabama .....	2 10,000	200	
Georgia .....	4 22,500	250	
Mississippi .....	1 5,000	.....	
North Carolina .....	10 59,848	582	
South Carolina .....	6 85,680	1,870	
Tennessee.....	1 13,000	.....	
Texas.....	2 5,000	550	
Virginia .....	2 13,000	300	
	28 214,028	3,752	
Middle & Western States—			
New Jersey .....	2 2,500	30	
New York .....	5	24	
Oklahoma .....	1 10,000	300	
Pennsylvania.....	5	15	
	13 12,500	369	

Analyzing these statistics and comparing them with those of previous years, it will be found that New England claimed 468,714 spindles installed in 1910, as compared with 599,000 in 1909, a decrease of 22 per cent.; whereas the Southern States report only 214,028 spindles in 1910, as compared with 527,528 spindles in 1909, a decrease of 60 per cent. Two-thirds of

COMPARISON OF SPINDLES IN NEW COTTON MILLS FOR THE YEARS 1905-1910				
Year	New England	Southern States	Middle & Western	Total
1910 .....	468,714	214,028	12,500	695,242
1909 .....	599,000	537,528	79,968	1,206,496
1908 .....	115,000	91,193	3,500	209,693
1907 .....	113,000	294,745	10,250	417,995
1906 .....	171,000	294,956	27,040	492,996
1905 .....	100,800	97,920	.....	198,720

the new spindles installed in the United States in 1910 are to be found in New England. In the cotton industry the manufacturers of coarse goods were most affected by the high price of cotton, because the raw material contributes so large a part of the cost of such goods. In the cost of fine goods, on the other hand, labor is a much more important item than in low goods. As a result we find the development of cotton manufacturing retarded chiefly in the South, where the product is mainly the low and medium goods. In South Carolina, especially, conditions in the textile industry during 1910 were not good and many mills announced that they would not declare their semi-annual dividends on January 1, 1911. In New England a much larger proportion of the product of the cotton mills consists of fine goods.

The total of new woolen and worsted mills in 1910 was less than in 1909. Reports were had of the construction of 31 new mills. Of these

29 mills were classified as follows: 16 worsted, 7 carpets and rugs, 2 knitting yarn, 2 felt, 1 blanket, 1 satinete.

#### NEW WOOLEN AND WORSTED MILLS

New England—		No. 1910
Connecticut .....	5	
Massachusetts .....	6	
Rhode Island.....	2	13
	—	
Middle States—		
New Jersey .....	1	
New York .....	4	
Pennsylvania.....	9	14
	—	
Western—		
Ohio.....	3	
Washington .....	1	4
	—	31

This construction may be compared with that for previous years as follows: 1909, 47; 1908, 22; 1907, 25; 1906, 56; 1905, 38.

The number of new silk mills for 1910 was slightly behind the 1909 total and was about equal to the average for the preceding two years. New Jersey and Pennsylvania maintained their pre-eminence in this industry with 29 of the 34 mills built in 1910. There was no indication that the development of the silk business is likely to deprive these two States of their leading position in this branch of manufacturing.

#### NEW SILK MILLS

California—		1910
Broad .....	1	1
	—	
Connecticut —		
Silk yarn ..	1	1
	—	
Massachusetts —		
Broad .....	1	1
	—	
New Jersey—		
Silk yarn .....	2	
Broad .....	10	
Ribbon .....	1	
Miscellaneous .....	1	14
	—	
New York—		
Ribbon .....	1	1
	—	
Pennsylvania.....		
Broad .....	6	
Ribbon .....	4	
Silk throwing.....	3	
Artificial.....	1	
Miscellaneous .....	1	15
	—	
Rhode Island—		
Silk throwing.....	1	1
	—	34

**THALLIUM.** See ATOMIC WEIGHTS.

**THANET, OCTAVE.** See LITERATURE, ENGLISH AND AMERICAN, Fiction.

**THEAL, G. M.** See LITERATURE, ENGLISH AND AMERICAN, Travel and Description.

**THEODORE THOMAS ORCHESTRA.** See MUSIC.

**THEOLOGICAL EDUCATION.** See UNIVERSITIES AND COLLEGES.

**THIOL** is a water soluble mixture of sulphurated and sulphonated petroleum oils prepared by heating certain paraffin oils with 10 per cent. of sulphur, by which process a partial addition to sulphur takes place. The thiol oil thus formed is then treated with sulphuric acid for sulphonization. Thiol is a brown powder with a pleasant odor resembling Russia leather,

having a somewhat bitter and slightly astrigent taste; it is soluble in water, alcohol, and slightly soluble in ether. The drug is said to have a drying, astrigent, antiphlogistic, and disinfecting action. Taken internally, it is said to help digestion and to be useful in skin diseases, especially in dermatitis, acne, erysipelas, erythema, furunculosis, herpes, pruritis, pityriasis, etc.

**THOMAS, CYRUS.** An American anthropologist, died June 26, 1910. He was born at Kingsport, Tenn., in 1825, and received a public school and academic education. He studied law and was admitted to the bar in 1851, practicing until 1865. In that year he became a minister of the Evangelical Lutheran church. In 1869-73 he was an assistant in the United States Geological Survey. From 1873 to 1875 he was a professor of natural science in the Southern Illinois Normal University and from 1874-76 was State Entomologist of Illinois. He was a member of the United States Entomological Commission in 1876-7 and from 1882 to the time of his death was archaeologist of the United States Bureau of Ethnology. Among his published works are *Noxious and Beneficial Insects of Illinois*, 5 vols.; *Notes on Certain Maya and Mexican Manuscripts*, *Burial Mounds of the Northern Section of the United States*, *Cherokees and Shawnees in Pre-Columbian Times*, *Mound Explorations of the Bureau of American Ethnology*, *Prehistoric Work East of the Rocky Mountains*, *Introduction to American Archaeology*, *Indians of North America in Historic Times*, *Prehistoric North America*, and *Languages of Mexico and Central America*.

**THOMAS, JOSEPH.** An American inventor, died July 1, 1910. He was born in a suburb of Paris, France, in 1827, and came to the United States at the age of 19. He became a machinist's apprentice and early began to show an inventive genius. He was employed by Isaac Merritt Singer at the time the latter was perfecting his sewing machine in New York City, and he had a large part in inventing the feeder and oscillating device which made the sewing machine a success. Perhaps his most important invention was the first machine for the manufacture of sulphur matches. This machine was able to turn out 20,000 matches a minute. In the 50's Mr. Thomas invented the steel wire hoop skirt which soon became worn throughout the United States and elsewhere. He sold his invention to a Philadelphia manufacturer, who made the skirts on an extensive scale and built up a large fortune. He invented also a grip to hold cars operated with a cable. He lived in Hoboken, N. J., over fifty years, and in 1862 was a member of the Hoboken Common Council.

**THOMSON, Mlle. V.** See FRENCH LITERATURE.

**THORIUM.** See ATOMIC WEIGHTS.

**THULIUM.** See ATOMIC WEIGHTS.

**THULMERE AQUEDUCT.** See AQUEDUCTS.

**THURSTON, KATHERINE CECIL.** See LITERATURE, ENGLISH AND AMERICAN, Fiction.

**TIBET.** A Chinese dependency in central Asia. Approximate area, 463,200 sq. miles; estimated population, three to six millions. Capital, Lhasa (15,000 to 20,000 inhabitants). Tibet is the home of Lamaism, a corrupt form of Buddhism. Wool, borax, salt, animals, and musk are exported to India, in return for cotton and woolen goods, coral and grain. The total trade in 1909-10 was about £201,000—a

serious decline from 1908-9, due to political disturbance. The head of the government, the Dalai Lama (Tubstan, born 1876, ruled from birth), who had fled before the British advance on Lhasa (1904), returned in January, 1910. In February he again fled into India, pursued by Chinese troops, and was deposed by the Chinese emperor. See CHINESE EMPIRE, History. There are two Chinese residents (ambans): 1910, Tchao Ehr-feng and Wen Tsong yo). Permanent Chinese troops are stationed in the country.

Rumors of an interference on the part of the Tibetans and Chinese with the British trade agencies in Tibet were circulated in the latter part of July. As a precautionary measure Indian troops were mobilized for the protection of the agencies. It was feared the Tibetans would attack the latter on account of England's refusal to aid in restoring the Dalai Lama.

**TIMBER.** See FORESTRY.

**TIME COMPUTATIONS FROM MORAINES.** See GEOLOGY.

**TIMOR.** An island of the Malay Archipelago, the largest of the Lesser Sunda group, divided between the Netherlands and Portugal. Approximate area, 12,593 square miles; estimated population, 400,000. About 7330 square miles (200,000 inhabitants) belong to Portugal; capital and chief port, Dilli. The natives are pagans. Imports into Portuguese Timor (1908), 310,625 milreis; exports, 358,413 (coffee, 230,722; sandal wood, 46,895; wax, 23,776; sandal root, 18,514). Estimated revenue (1909-10), 139,858 milreis; expenditure, 220,600. Governor (1910) of Portuguese Timor, F. da Camada; of Dutch Timor, E. F. J. Loriaux.

**TIN.** The tin supply of the world in 1909 amounted to 117,149 short tons. Of this amount by far the greater part came from the Straits Settlements. The production of tin in the various countries from which it is obtained is shown for the years 1908-9 in the following table:

SUPPLY OF TIN IN 1908 AND 1909 IN SHORT TONS

	1908	1909
Total shipments:		
Straits Settlements .....	67,760	65,459
Austria .....	6,552	5,992
Bolivia .....	19,040	23,523
South Africa .....	1,904	916
China .....		
Bank sales in Holland .....	12,880	12,992
Billiton sales in Java .....	2,465	2,465
Production in Cornwall .....	6,048	5,802
Total .....	116,649	117,149

Tin is one of the few commercial metals of which the United States is not an important producer although it is the largest consumer of the metal, taking about 43 per cent. of the world's production. Small amounts are mined in South Dakota. Prospecting is also carried on in Texas and several other States although there are no producing mines.

In 1909 the United States imported for consumption 47,662 short tons of metallic tin, valued at \$27,558,546; 1432 tons of cassiterite, valued at \$68,462; tin foil, valued at \$23,427 and other manufactures of tin valued at \$55,714. In 1910 there was no production of tin in the United States, although a serious attempt was made to develop the industry both in Texas and South Dakota. The monthly prices of tin in New York during the years 1909-10 are shown

in the following table taken from the *Engineering and Mining Journal*.

## TIN AT NEW YORK

Month	1909	1910	Month	1909	1910
January....	28.060	32.700	July ....	29.125	32.695
February....	28.290	32.920	August ...	29.966	33.972
March.....	28.727	32.403	Sept.....	30.293	34.982
April.....	29.445	32.976	October...	30.475	36.190
May.....	29.225	33.125	Nov.....	30.859	36.547
June.....	29.322	32.769	Dec.....	32.913	38.199
Av. Year..			29.725	34.123	

Prices are in cents per pound.

The imports of tin in all forms into the United States for the fiscal year 1910 amounted to 101,134,508 pounds, valued at \$30,869,532. Of this, the largest quantity was imported from the United Kingdom, 56,610,111 pounds; from the Straits Settlements, 37,674,628 pounds. The remaining quantity was imported from the Netherlands and other countries of Europe and countries of Asia and Oceania. See **ATOMIC WEIGHTS**.

**TIN, DECAY OF.** See **CHEMISTRY**.

**TIRRELL, CHARLES QUINCY.** An American public official, member of Congress from the 4th Massachusetts District, died July 31, 1910. He was born in Sharon, Mass., in 1844 and graduated from Dartmouth College in 1866. He was engaged in teaching from 1867 to 1869 and after studying law he was admitted to the bar. He practiced in Boston and was elected a member of the Massachusetts House of Representatives in 1872 and of the State Senate in 1881-2. He was a presidential elector in 1888. He was elected to the House of Representatives in 1901 and was successively re-elected until 1911.

**TITANIUM.** See **ATOMIC WEIGHTS**.

**TOBACCO. THE UNITED STATES CROP.** The tobacco crop of 1910 in the United States was 984,349,000 pounds, grown on 1,233,800 acres. This was an increase of about thirty-five million pounds over 1909, and 26 per cent. above the average production of the five preceding years. Of the total amount, 167,000,000 pounds was of the cigar type, the balance being of chewing, smoking, snuff, and export types. The farm value of the crop is estimated at \$91,459,000. The value of the exports of tobacco amounted to \$38,115,386, and of the imports to \$27,756,133. The pool in the White Burley district, in the long fight against the American Tobacco Company, was broken near the close of the year by the high prices offered by the trust. A considerable part of the pooled crop of 1909 remains on hand, and the unpooled portion of the 1910 crop is practically untouched, which has led to agitation in favor of growing no crop in 1911. Shade-grown cigar tobacco, which for a time was very profitable in Georgia and Florida, has ceased to be profitable to the grower at present prices. The internal revenue tax on manufactured tobacco during the fiscal year 1910 was \$57,889,351.59, an increase of over \$8,000,000 above 1909. This tax was collected on 8,139,030,144 cigars, 7,874,300,329 cigarettes, 436,608,898 pounds of smoking tobacco, and 31,969,111 pounds of snuff.

The Cuban crop of 1909 is given as 404,358 bales of 120 pounds each, against 563,059 bales in 1908. The crop in Russia for 1909 was 88,200 tons, grown on 147,546 acres. In 1908 Japan produced 90,740,000 pounds on an area of 73,218 acres. The new tariff law has greatly

stimulated interest in the tobacco industry in the Philippines. In the eleven months ending June 3, 1910, about 88,000,000 cigars, valued at \$1,906,447, were shipped from the islands to the United States, or something more than half the number allowed free admission. The total exports of cigars increased from 115,977,000 in 1909 to 196,192,000 in 1910. The price of leaf tobacco in the islands has advanced 80 per cent. A recent census of the tobacco industry in Great Britain shows the total quantity of tobacco manufactured to be 966,000 cwt., valued at \$115,817,833, and an average of 37,456 persons employed in the trade.

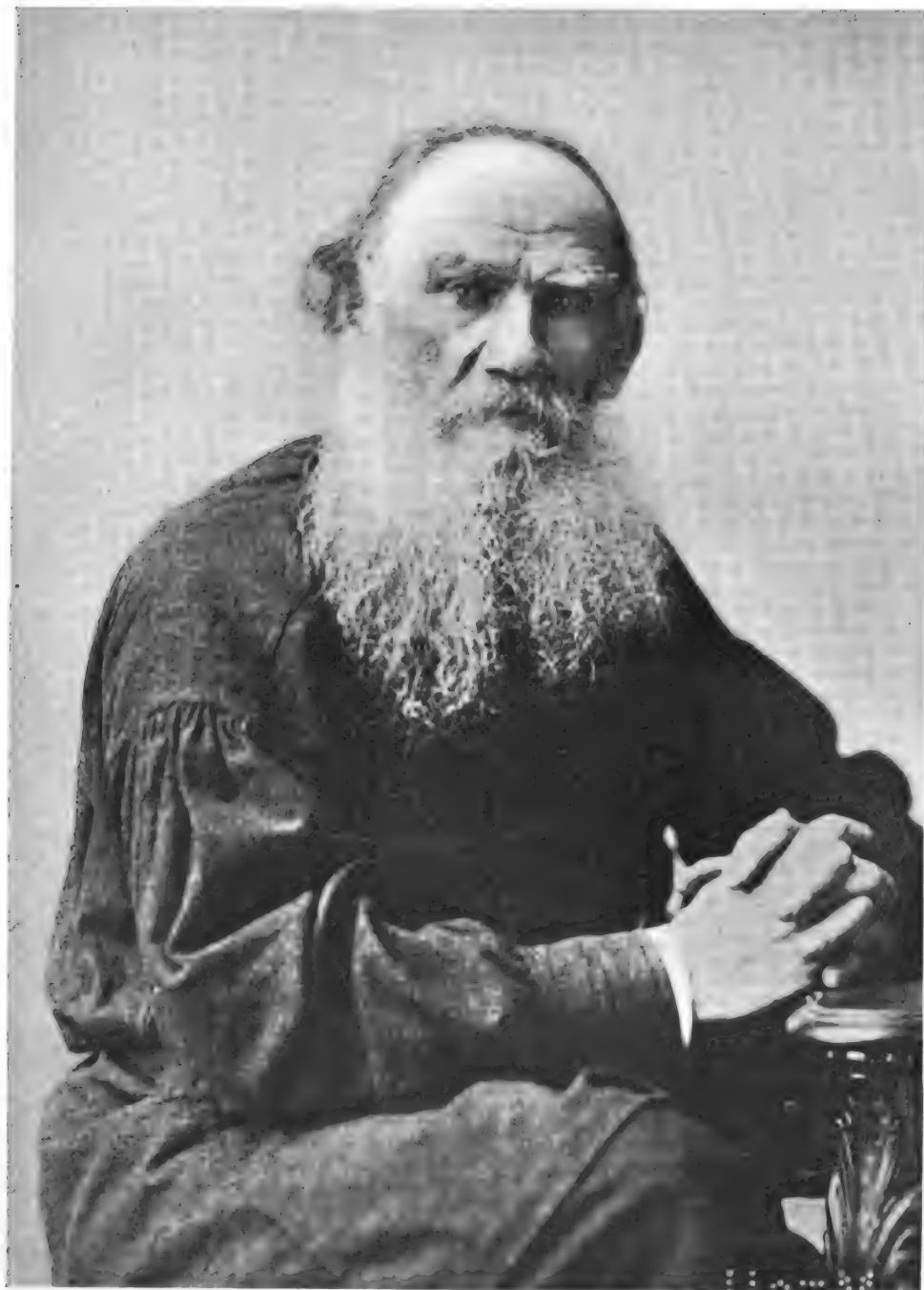
**TOBLER, ADOLF.** A Swiss philologist, died in March, 1910. He was born at Hirzel, in the canton of Zurich, in 1835 and was educated at the schools of his native town and at the University of Bonn. In 1867 he became professor at the University of Berlin. He wrote many monographs on philological subjects, and his researches have contributed greatly to the knowledge of Old French syntax. His publications include: *Gedichte von Jehan de Coucet* (1860); *Vom französischen Versbau alter und neuer Zeit* (3d ed. 1894; French translation 1885); *Vermischte Beiträge zur französischen Grammatik* (three series, 2d ed., 1899-1906); an edition of *Li proverbe au vilain* (1895).

**TODD, Sir CHARLES.** An Australian astronomer, died February, 1910. He was born at Islington, England, in 1826. In 1841 he became computer at the Royal Observatory, Greenwich. After spending some time at Cambridge Observatory he returned to Greenwich and in 1855 was appointed government astronomer for South Australia and in this post he remained until his death. He was knighted by Queen Victoria for his work in connection with the telegraph in Australia.

**TOGOLAND.** A German protectorate on the west coast of Africa. Area, 33,700 square miles; population, about 1,000,000. Capital and chief port, Lome. Imports (1908), 8,509,380 marks (cotton, 1,850,958; cotton yarn, 233,913; spirits, 513,615; iron and iron wares, 446,635). Exports, 6,893,324 marks (palm kernels, 957,231; palm oil, 497,474; rubber, 587,022; cotton, 366,040; corn 2,030,746). Vessels entered, 260, of 471,140 tons (312,495 tons German). Estimated revenue (1909-10), 6,453,073 marks; expenditure, 6,982,016. There are 102 miles of railway in operation, and 108 under construction. Governor (1910), Count von Zeeh-Neuhofen. Little Popo and Porto Seguro are administratively attached to Togoland.

**TOLMAN, A. H.** See **LITERATURE, ENGLISH AND AMERICAN, Essays and Literary Criticism**.

**TOLSTOY, LYOFF (LEO) NIKOLAYEVITCH.** Count. A Russian novelist, philosopher and philanthropist, died November 20, 1910. He was born August 28, 1828, at Yasnaya Poliana, a village about 150 miles south of Moscow. He was a descendant in the 20th generation from a German named Indris, who went to Russia in 1353 with two sons and a retinue of 3000 people, and on being baptized into the Orthodox Church received the name of Leonty. His great grandson received the surname Tolstoy and the countship dates from the coronation of Empress Catherine I, having been bestowed upon Peter Andreyevitch Tolstoy as part consideration of his services in the trial and execution of the Tsarevitch Alexis. Count Tolstoy's mother died when he was three years old, and his father five years



COUNT LEO TOLSTOY

1790

later. The boy's early life was spent in the village and his early training was conducted under the influence of the general feeling among the wealthy Russians that religion was a superstition and not necessary for the best development of really cultured people. In 1844 he entered the Kazan University as a student in Turco-Arabic literature, but failing to pass the examination was transferred to the Department of Law. He received his diploma in 1858 "knowing literally nothing" as he asserted later. In 1851 he went to visit his brother in the Caucasus and there he was profoundly impressed with the rugged wildness of that country. He entered the Horse Guards as a volunteer and remained in military service eight years. In January, 1854, two months after the Crimean War began, he was made a commissioned officer and he served in the campaign with distinction as the commander of a mounted battery. Previous to this period he had written many short stories, which attracted the attention of the literary circle in Moscow and St. Petersburg. The military events in which he was engaged furnished him with new experiences which were valuable in his later work. At the close of the war he returned to St. Petersburg where, as a nobleman, a successful officer in the war and a littérateur he was much lionized. He remained at the capital for several years, and to this period belong the works of the strictly literary type upon which his fame as a great literary artist rests. The most noted of these are *Childhood*, *Boyhood and Youth*, *The Cossacks*, *Sebastopol Sketches*, *War and Peace*, and *Anna Karenina*. He soon wearied of his surroundings in St. Petersburg and of his own manner of living and that of those about him. He afterwards referred to himself as having been during that period a murderer, adulterer, robber and thief, although there was no evidence that his conduct was the sort usually characterized by these terms. Returning to Yasnaya Poliana he made his home there for the greater part of each year during the rest of his life. In 1862 he married the daughter of a professor in the University of Moscow. In the society of his wife he found the greatest comfort and happiness. Though there were nine children born to them the cares of motherhood did not prevent the Countess from serving as her husband's amanuensis all through his years of authorship. Tolstoy's first act after he had retired to his country estate was to free his serfs. This was in advance of the famous decree of emancipation of Alexander II. He is said to have been the first nobleman in Russia to take this course. He then busied himself with plans for the education and betterment of the peasantry. After much introspection and study he became imbued with the idea of what seemed to him the purposelessness of living and contemplated suicide, but after consideration he gave up this idea and delved instead into all sorts of philosophic investigation. From observation of the manner of living among his peasants he at length reached the conclusion that a literal following of the gospels resulted in a truly useful and happy life. This period dates from 1880, and in the twenty years following his principal literary works were *My Confessions*, *Criticism of Dogmatic Theology*, which was never translated into English, *The Four Gospels Harmonized and Translated*, *What I Believe*, sometimes called *My Religion*, *The Gospel in Brief*, *What Must we do Then?* *On Life*, also

called *Life*, *The Kreutzer Sonata*, dealing with the sex question, *The Kingdom of God is within You*, *The Christian Teaching*, *What is Art?* and *Resurrection*. In these books Tolstoy set forth his ideas of true living. Much that they contained was at variance with the views of the Russian government and the author expected to be prosecuted directly for writing them. In this, however, he was disappointed for the government went no further than to suppress some of the books, mutilate others and to exile some of the author's friends. In 1901 he himself was excommunicated by the Holy Synod. Tolstoy at that time addressed a letter to the Czar himself in which he predicted that if the latter did not manifest a change of heart there would be a recurrence of all the terrors of Nihilism. For many years Tolstoy refused to accept payment for his writings, and this and the fact that he was continually giving away his property and associating with the poorest peasantry threatened the dissipation of his property. He was induced to make over his estates to his wife, but he himself lived in a small house in the simplest possible manner. Tolstoy asserted that he was opposed both to anarchism and socialism. He was in agreement with the single tax theories of Henry George, whom with William Lloyd Garrison he characterized as the greatest Americans. He was strongly opposed to the Russo-Japanese War and placed the blame on his native country. He prophesied that the Duma, whose members he referred to as "babblers," would never accomplish anything. In 1908 the celebration of his eightieth birthday was made the occasion of celebration in some twenty towns in Russia, in spite of the efforts of the government to prevent them and his own expressed desire that no celebration should take place. In 1907 it was proposed to confer the Nobel peace prize upon him, but he declined it and when a similar proposal was made in September, 1909, he again refused it, suggesting that it be bestowed upon the religious sect known as Doukhobors. With Turgenieff, Tolstoy was probably the most distinguished Russian writer of fiction. They were at one time intimate friends, but gradually drew apart. He was once told by Turgenieff that he was wrong in leaving the writing of novels for his philosophical and religious studies. His philosophy was narrowed by lack of breadth of vision and, to some extent, by downright ignorance. He knew little of the great currents of modern life, and as he grew older, became more erratic and intolerant. Certain of his novels were among the greatest ever written. His philosophical and social writings lack breadth and knowledge to make them of the first or second order. Several weeks before his death he left his home with the avowed purpose of spending the remainder of his life in solitude, but as the result of exposure he was taken ill and died while on the journey. His collected works were published at Moscow in 14 volumes, 1899 to 1905. Twelve volumes were translated into English. In addition to those mentioned above he wrote *The Decembrists*, of which only three chapters appeared, *The Death of Ivan Ilyitch* (1885) and the dramas, *The Power of Darkness*, *Fruits of Culture* and *The Corpse*.

**TONGA ISLANDS**, or FRIENDLY ISLANDS. A British protectorate in the South Pacific. Area, 390 square miles; population (police census of November, 1908), 21,695 Tongan natives; other Pacific islanders, 400; Europeans, 639.

Capital, Nukualofa, on the island of Tongatabu. Imports (1909), £152,871; exports, £217,155 (copra, £203,836; fruits, £7930). Entered, 43 vessels, of 64,942 tons. Revenue (1909), £40,457; expenditure, £34,739. Native king, Jioaji Tubou II, born June 18, 1874; married, November 11, 1909, to Ana Seini Jakibo, Princess of Tonga. British agent and consul, W. Telfer Campbell. Report was made at Seattle on April 30 by a vessel arriving from the Tonga Islands that two Presbyterian missionaries, Rev. Horatio Hopkins and Rev. Hector L. McPherson, had been killed and eaten by cannibals on Savage Island. Ancient religious rites which were accompanied by the eating of human flesh were said to have been revived in the Tonga, Solomon, Cook and Society Islands.

**TONGKING.** A French protectorate in French Indo-China (q. v.). Estimated area, 46,223 square miles; population (1906), 5,896,510. The capital, Hanoi (103,238 inhabitants), is also the capital of French Indo-China. Principal port, Haiphong (20,000). Coal, copper, and iron are mined. The chief crops are rice, sugar-cane, coffee, cotton, cardamoms, fruits, and tobacco. About 500,000 kilos of raw silk are produced annually, and there are two cotton mills. Imports (1908), 59,910,100 francs; exports, 60,468,800 francs. Vessels entered (1907), 209, of 151,940 tons; cleared, 249, of 255,486. The local budget balanced (1909) at 6,116,000 piastres. Resident-superior (1910), M. Simoni, acting.

**TONNAGE.** See article SHIPPING, and also under countries.

**TORPEDOES.** See NAVAL PROGRESS.

**TOTEMISM.** See ANTHROPOLOGY AND ETHNOLOGY.

**TOWN PLANNING.** See MUNICIPAL GOVERNMENT.

**TOWN PLANNING CONFERENCE, INTERNATIONAL.** See ARCHITECTURE.

**TOZIER, J.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**TRADE.** See paragraph *Commerce* in articles on countries and on States of the United States.

**TRADE AGREEMENTS.** See TRADE UNIONS, *Great Britain*.

**TRADE AND LABOR CONGRESS.** See CANADA, *Industrial Affairs*.

**TRADE BOARDS ACTS.** See GREAT BRITAIN, *History*.

**TRADE DISPUTES ACT.** See GREAT BRITAIN, *History*.

**TRADE SCHOOLS.** See EDUCATION IN THE UNITED STATES.

**TRADE UNIONS, INTERNATIONAL.** Recent years have shown a very decided tendency on the part of trade unions throughout the world to form international associations. One of the most important of these is the International Secretariat. The report of its sixth conference at Paris in 1909, issued during the summer, showed that trade unions of nineteen countries were represented. To these was later added the American Federation of Labor representing the majority of American trade unions. The total trade-union membership of these countries, as estimated in the report, was 9,960,000; this was known, however, to be several million short of the true number. A movement was begun, led by German unions, to form an International Federation of Labor with repre-

sentation on the basis of trade-union membership in the respective countries. At the close of 1909 there were twenty-eight international federations of trade unions, of which twenty-five had headquarters in Germany, two in Manchester, England, and one at Antwerp. In the spring appeared the first number of the *Bulletin* of the International Federation of Hatters, published by the secretary at Altenburg, Germany. As the hatmakers' trade is much the same the world over this *Bulletin* is expected to render real service to the membership. On August 26, representatives of the International Seamen's Union met at Copenhagen and adopted a motion for an international strike of three weeks, unless shipowners in each country appointed a committee to confer with union delegates on improving the condition of seamen. The main object sought was to establish some method for the arbitration and conciliation of trade differences. The delegates adopting this resolution represented the organized seamen of all the principal countries in the world. Later in the year it was stated that the strike would be ordered about May 1, 1911. A resolution was also adopted whereby a closer affiliation of all seamen's unions of the world was brought about. This makes it possible for a seaman belonging to the union in one country to be transferred to a union in another country without the payment of an entrance fee.

**AMERICA.** The campaign for an eight-hour day, begun by the International Typographical Union in 1905, practically ended in 1910. The membership, which declined by 4000 from 1905 to 1908, increased by 10,000 to 52,100 in 1910. This campaign, attended by strikes and lockouts at various points throughout the country, was successful. It cost the Union more than \$5,000,000 collected from those members employed. During these years an old-age pension scheme was put into operation. On May 31, 1910, there were 642 persons on the pension roll and they had received \$196,740 during the preceding year. This Union showed receipts of \$1,800,000 and expenditures of \$1,640,000 in 1907, which was a strike year. In 1909 the receipts were \$478,000 and the expenditures \$458,000. The International Moulders' Union of North America started a strictly life insurance scheme on the basis of the fraternal congress tables. The plan for this was first presented in 1907, but was set aside for two years on account of industrial depression; a fund of \$10,000 was provided to institute the scheme.

At its convention at Indianapolis in February the United Mine Workers authorized a committee to meet with the Western Federation of Miners with a view to arranging a basis for coöperation. This step was later followed by others looking toward a consolidation of miners in the metaliferous and coal mining industries into one international union. The increased use of trade agreements and of conciliatory methods in securing the readjustment of wages and conditions was well illustrated by the Order of Railroad Telegraphers. From January to September this union settled fifty-one wage scales, gaining \$1,000,000 in the annual wages of 50,000 men. A few of these disputes were attended by temporary strikes settled quickly by conciliation under the Erdman Act. The *Official Journal* of the Cigar Makers' International Union reported that this organization had on hand at the close of 1909 a cash balance of

\$672,000. During the year it had paid strike benefits of \$20,000; sick benefits of \$186,983; death or total disability benefits of \$238,284; traveling benefits of \$41,589; and out-of-work benefits of \$76,107. The latter, though somewhat smaller than in 1908, was four times as much as in 1907 and larger than in preceding years since 1897. The Union, which has weekly dues of thirty cents, had 51,477 members, or almost twice the membership of 1898.

**UNION SHOP UPHOLD.** In 1902 the New York Stereotypers' Union No. 1 and the New York Electrotypers' Union endeavored to organize the men in the Brooklyn branch of the United States Printing Company. A strike resulted, followed by an agreement whereby only union men were to be employed after January, 1904. A stockholder and two employees of the company secured injunctions restraining the company from carrying out this agreement. After several trials the case was decided in January, 1910, by the Court of Appeals refusing to sustain the injunction. The Court held that those securing the injunction, not being parties to the agreement, could not interfere with its fulfillment. Trade unionists were inclined to interpret this decision as meaning that a strike and agreement for the union shop are legal. See **LABOR, AMERICAN FEDERATION OF.**

**GREAT BRITAIN, PARLIAMENTARY REPRESENTATION.** The most widely discussed problem in trade-union circles of Great Britain was the problem of labor representation in Parliament. On December 21, 1909, the House of Lords had sustained a judicial decision of a year earlier in the case of *Osborne vs. The Amalgamated Society of Railway Servants* in which it was declared that a trade union is not competent to maintain representation in Parliament by means of union funds or levies upon its members. This decision was based on the doctrine that a trade union is so clearly an industrial, rather than a political organization, and that these two purposes are so dissimilar, that it is illegal to use union funds for political purposes. The decision, therefore, was a serious blow to many of the newer activities of English unions. Not only have they for forty years maintained representatives in Parliament, but local unions have taken part in municipal elections in the election of poor-law guardians. At the Trade-Union Congress political questions have been regularly discussed for decades and the tendency of the British trade-union movement has been to become more socialistic in temper with a more pronounced conviction that the advancement of trade-union welfare depends largely upon political action. Following the above decision many trade unions took steps to maintain their parliamentary representatives by voluntary contributions. At the spring session of Parliament a bill was introduced by the labor members authorizing trade unions to support their representatives out of union funds. This was advanced only to the first reading. A counter-proposal was made by representatives of the government that a law be passed providing for the payment of all members of Parliament and the expenses of elections out of the Imperial Treasury. This proposal was vigorously denounced by trade-union leaders on the ground that it would tend to undermine their corporate activity.

The **TRADE-UNION CONGRESS**, at its annual meeting at Sheffield in September, devoted a

great deal of time to the discussion of the Osborne case. It resolved, by a vote of 1,171,000 for to 13,000 against, to support by every possible means the Labor party bill for a reversal of this judgment. It also adopted a resolution favoring the concentration of the English trade-union movement under one head, instead of under three as at present. There are independent unions having no bond except that of sending delegates to the Trade-Union Congress and of exerting some influence in the appointment of members of the Parliamentary Representation Committee. Then many of these unions, with an aggregate membership of 700,000, are affiliated with the General Federation of Trade Unions, which has its own annual conference. In the third place there is the Labor party to which most of the unions belong; therefore, many unions are represented in three annual conferences. The preliminary draft of plans for amalgamation was placed in the hands of a committee. An important matter of trade-union relationship grew out of a resolution adopted by the Congress in 1906, excluding any organization which divides public employees from fellow-workmen employed by private concerns in the same occupations. On this ground the Municipal Employees Trade Union was denied admission. The union thereupon admitted other laborers than municipal employees; but it was again denied admission because this new condition made it impossible for it to gain admission to any national trade union without which it could not be admitted to the Congress. The new system of labor exchanges (q. v.) was strongly condemned. Previously, the unions had maintained exchanges themselves and employers were accustomed to seek labor through them. This gave unions greater control over the labor supply in their respective fields, but the new exchanges, ignoring the distinction between union and non-union, have weakened this control.

**UNION OF TRANSPORTING TRADES.** On September 22-23 a convention of fifteen unions, including every branch of the transportation trade, met to discuss the question of uniting into one organization. The conference included representatives of railway servants; sailors; ship firemen; stewards; cooks; butchers and bakers; dock, wharf, and riverside workers; stevedores; engine men; truck drivers. About 200,000 workers were represented. While actual amalgamation was not achieved a federation was formed to reduce competition and secure a better adjustment of trade disputes.

At the annual convention of the Amalgamated Society of Railway Servants, at which sixty delegates represented 60,000 members, and the convention of the Miners' Federation, at which 167 delegates represented 600,000 miners; the strongest opposition was shown to the Osborne decision. The latter organization rejoined in a practically general eight-hour day in the mines of Great Britain. It demanded modification of the Workmen's Compensation Act by provision of minimum compensation of \$3.75 per week for all coal-getters and \$3 for all other adult workers in mines.

In 1909 the Parliamentary Committee sent a delegation to Germany to study the workingmen's insurance systems. They reported favorably. Thereupon plans were drawn up for insurance against sickness and unemployment based on compulsory contributions from both

employers and employes, with state subsidy; the insurance to be differentiated by trades. The legislative programme of the committee included the repeal of the Osborne decision; provision for unemployed workmen; the Education Administration Provisions bill, dealing with the feeding of school children; a forty-eight hour week for all workmen; the nationalization of railways; and a bill dealing with the eviction of workmen during trade disputes.

**SOCIALISTIC TENDENCIES.** Unlike the situation in the United States and some Continental countries, the English unions combine political and trade activities. This tendency is accentuated by the growth of Socialism among trade unionists. This is viewed with alarm by many, even by some trade union sympathizers. The trade union has heretofore for the most part been concerned chiefly with the advancement of the interests of its own members, even by conflict with other unions. But Socialism spreads the feeling of working-class consciousness; it aims to advance the interests of all laborers; it is likely therefore to lead to greater efforts to organize all such and induce them to strike together in a general strike for the interests of any one group.

**NUMBERS.** The Board of Trade *Labor Gazette* for August gave the number of trade unions at the beginning of 1910 as 1153 with a total membership of 2,347,461. Although this was somewhat below the total for the two years preceding it was ten per cent. larger than for any other year. In the building trades there was a continuous decline for nine years, aggregating thirty-five per cent. There was, however, an increase in the textile and mining groups. The membership included 207,518 women. The *Gazette* for April gave the membership of mining and quarrying unions as 718,000; engineering and ship-building, 365,200; railway service, 118,700. The total income of 100 principal unions in 1908 was \$13,668,000, and expenditures \$16,600,000; the aggregate reserve fund, \$25,850,000; the aggregate expenditures of these unions in ten years equaled \$97,000,000; of this eleven per cent. went for strike benefits and forty-three per cent. for unemployed benefits.

**TRADE AGREEMENTS.** The English unions, more than any others, have perfected the use of trade agreements and arbitration and conciliation boards. In October, 1910, there were in force 1696 trade agreements, affecting 2,400,000 workers. These agreements depend on the organization of employers and employes; they fix hours, wages, and other conditions of work; and they frequently provide means for the conciliation or arbitration of differences, with penalties for strikes or lockouts in violation of these terms. By trades they were distributed as follows: Building, 803 affecting 200,000 workers; clothing, 303 affecting 50,000; metal, engineering and shipbuilding, 163 affecting 163,000; mining and quarrying, 56 affecting 900,000; printing, 79 affecting 40,000; textiles, 113 affecting 460,000; and transportation, 92 affecting 500,000.

**FRANCE.** The chief centre of trade union activity in France in the last few years has been the *Confédération Générale du Travail*. This was organized in 1895 and now has a membership variously estimated at 300,000 to 400,000. Although the total number of trade-union members in the country now exceed

1,000,000, this General Federation of Labor is the centre of radical and aggressive action. It is composed of representatives from two classes of labor groups, namely, the labor exchanges (*Bourses du Travail*) and the federations of labor and industry (*Fédérations de Syndicats*). The former now number 150. They receive annual subsidies from the various cities in which they are situated amounting to a total of 500,000 francs; thus the Paris Exchange receives 110,000 francs per year, that at St. Etienne 31,000, that at Bordeaux 12,000. These exchanges form centres of education in trade union policy. They maintain libraries and lecturers; and they carry on active union organization. The *Syndicats* have as their chief function the promotion of strikes. The interesting feature of the organization of the General Federation is that each subgroup, whether a federation of labor exchanges or a federation of syndicates, has a representative on the General Committee. Thus the federation of railway unions with 24,000 members, the union workers with 14,000, the mechanics with 5000, and the laundry-workers with 200, each have one delegate. The result is that the larger and more conservative bodies, though possessing a considerable majority of actual members, have less voting power than the smaller and more radical groups. The General Committee of the Federation has three permanent committees: (1) the committee in charge of the daily news organ, *Voix du Peuple*; (2) the committee on strikes and the general strike; (3) the committee of organization. It is the committee on strikes and the general strike which directs the chief activities of the Federation. At its various congresses the Federation has pronounced in favor of the boycott, sabotage, and the general strike. It declares its purpose "to instil into the mind of the workingman the necessity for a general strike." "Repeated strikes are for the proletariat a powerful medium of education, as well as excellent practice for action." The sabotage system, although adopted as early as 1897, has come into active use only in the last two years. It is based on the principle of "bad work for bad pay." It includes the policy of spoiling goods on purpose, wasting the material, stirring up prejudice against the employer, malicious injury and destruction of machines and instruments, and other methods of spoiling a job. Along with these policies goes the condemnation of arbitration, workingmen's councils, and any means of regulating strikes. The Federation also condemns patriotism and the use of military force in industrial disputes. It has for several years carried on an active propaganda among the soldiers. These facts indicate that a radical anarchistic group of leaders has obtained control of the chief body of French unions. But it is nevertheless true that a considerable proportion of the membership favor the gradual reform of existing industrial conditions rather than revolution.

The most important strike initiated by the Federation during the year was the general railway strike (see **STRIKES AND LOCKOUTS**). This cost the country about \$55,000,000, the loss to the employes being \$2,500,000 in wages. This strike was responsible for the government policy, initiated by M. Briand, of instituting an effective means of preventing strikes on railways and other public utilities.

**GERMANY.** One of the most notable developments of trade-union policy in Germany in recent years is the increase in the use of collective bargaining and conciliation. These methods have come more and more into use as the unions have become stronger financially and numerically and therefore better able to enforce their demands by strikes. In 1908 there were about 78,000 persons benefited by strikes and lockouts, while 397,000 were benefited by 1973 collective trade agreements. At the close of 1908 there were in force 5671 trade agreements affecting 120,401 establishments and 1,026,000 employees. Of these 2096 agreements and 423,072 employees were in the building trades; 557 agreements and 112,800 employees were in wood working; and almost equally large numbers applied to metal working, the clothing trades, and food preparation, and allied trades.

At the close of 1907 the total membership of German trade unions was 2,405,368. This was only slightly below the maximum of 1907. The membership of the larger organizations was as follows: Metal workers, 385,270; masons, 171,337; wood workers, 148,942; factory operatives 135,946; miners (Social Democrat) 113,328; textile workers, 181,488; transport workers, 92,039; miners, (Christian) 78,619; printers, 57,836; railway mechanics, 56,767; building laborers, 56,653; carpenters, 53,077; painters, 39,201; tailors, 38,208; machinists and metal workers (Hirsch-Duncker) 37,647; shoemakers, 36,138; building mechanics and laborers, (Christian) 34,418; brewery workers, 33,695. The total membership of the Social Democratic unions was 1,832,667; about three-fourths of the remaining membership was credited to the Christian unions promoted by the Catholic Church and one-fourth to the Hirsch-Duncker unions. The total expenditures of all trade unions was \$12,800,000, of which 85 per cent. was spent by the Social Democratic unions. These latter spent \$1,750,000 for strike benefits, \$2,250,000 for unemployment and traveling benefits, and \$2,200,000 for sickness and death benefits.

**AUSTRIA.** The total membership of Austrian unions at the close of 1909 was 415,000, a decline of 85,000 in two years. These represented seven different nationalities: Germans, Bohemians, Italians, Slovaks, Croats, Ruthenians, and Rumanians. Of these the Germans comprised seventy-five per cent. and the Bohemians twenty per cent. The unions have adopted the policy of keeping trade union activity separate from political agitation, although the leaders in both movements may be the same. The total benefits paid by all Austrian unions in 1907 were \$573,000. Of this \$230,000 were for unemployment benefits, an equal amount for sick, funeral and infirmity benefits, and small amounts for travelling and distress. The total receipts were \$1,600,000 and total expenses \$1,400,000.

**SWEDEN.** The general strike of 1909, although it failed, had the effect of increasing the feeling of solidarity among trade unionists. This led to the question of the advisability of combined trade-union action for political purposes. At the convention of the national labor organizations it was voted to keep the trade-union movement separate from the political movement. While endorsing "the social democratic party as the natural expression of the national ambition of the Swedish workers," it

seemed advisable to separate the economic and political agitations in order not to cause disruption in the trade-union ranks. This was similar to action taken in Hungary and Italy. It means that the Socialists will not dominate the trade-union movement. The total membership of Swedish trade unions, January 1, 1909, was 169,776.

**BELGIUM.** The International Miners' Congress opened at Brussels August 12. Resolutions were adopted favoring the nationalization of mines and demanding laws authorizing workmen to be mine inspectors so that mines can be inspected at any time, establishing wage boards to fix minimum wages proportional to the cost of living, and forbidding the employment of women and girls in mines under any conditions.

**TRANS-AND-AN RAILWAY.** See EXPLORATION, paragraphs on America.

**TRANSMISSION OF ELECTRICAL POWER.** The complete success of power transmission at 110,000 volts was fully established by the operating experiences of 1910, and pressures of this value or higher will doubtless be considered standard rather than experimental henceforth. The great 300-mile transmission system of the Hydro-electric Commission of Ontario went into successful operation at this pressure early in the year. The generating station of this system has been planned for an ultimate development of 220,000 horse-power. The transmission system is noteworthy for its extensive use of aluminum conductors. It is expected that this great development will have a marked influence on the industrial development of the province.

**EXPERIMENTS WITH HIGHER PRESSURES.** Sustained operation at voltages above 110,000 was not attempted commercially, though the Southern Power Company successfully experimented with 125,000 volts on its 100,000-volt system. Work was begun on a line to be operated at 135,000 volts between Cook Falls, Michigan, and the cities of Flint and Battle Creek, a distance of 190 miles. The line is to be a single three-phase circuit of No. 0 copper wires hung from 8 disc, suspension type insulators. Some conception of the important mechanical problems introduced by the suspension type of insulation and these great pressures is gained from the fact that the wires are to enclose an isosceles triangle with sides of 17 feet and a 12 foot base. It is estimated from experiment that the brush discharge losses of the line will be about one kilowatt per mile.

The year 1910 marked the introduction of 110,000 volt transmission in Europe. The Lauchhammer Iron Works Co. began construction on a 40,000 kilowatt system to develop power from the extensive peat deposits at Lauchhammer for transmission to its plants at Groditz and Riesa, a distance of 50 kilometres. The amounts of power and the transmission distances of European systems are generally less than in the more noteworthy American systems and the development of extremely high voltages has been distinctly an American achievement. The use of voltages above 110,000 is expected to develop slowly. Engineers are generally agreed as to the physical feasibility of higher pressure, but, unless the power to be transmitted and the distance are enormous, the economy in copper from further reduction

of the already small conductors would be slight and would probably not offset the increased cost of insulation. With extremely high pressures the mechanical strength of the line is the factor limiting its size rather than its conductivity.

**PROGRESS IN 1910.** The year 1910 was marked by a growing conservatism in new developments due largely to the financial difficulties into which many plants have fallen. Financial promoters have discovered that the ability to secure heavy and uniform all-day loads to work the expensive plants to the highest capacity is the determining factor in these ventures. The great gains in the economy of steam-power generation made possible by the advent of the large turbine units has tended to discourage hydro-electric undertakings. Aside from those mentioned above new projects of importance were conspicuously few.

Much progress was made in the unification of existing plants by tying them into transmission networks, thus increasing the financial and electrical stability of the system, permitting the most economical distribution of loads and increasing the minimum power which can be guaranteed, as periods of low water do not always affect different plants simultaneously.

The Swedish government has undertaken the systematic development of its water power resources. A 40,000 horse-power station now in operation is being doubled in capacity. A new development was begun at Porjus to be completed in 1914 with 37,500 horse-power of immediate and 100,000 of eventual development. A third station of 40,000 horse-power is to be built at Dalälven and other projects are projected as a part of the national system.

No developments of note in underground transmission are to be recorded; 30,000 volts continues to be the upper limit of insulated cable practice.

**TRANSVAAL, THE.** A province (since May 31, 1910) of the Union of South Africa; formerly a British colony. Provincial capital, Pretoria.

**AREA, POPULATION, ETC.** Total estimated area, 110,425 square miles. Population (1904), 1,262,698 (whites, 289,082). Pretoria had 36,700 inhabitants (21,161 whites); Johannesburg (the centre of the Witwatersrand gold-fields), 158,580 (83,902 whites). Schools (1908), 624 primary, with 44,451 pupils; 220 native, with 10,725 pupils. Pupils in secondary schools, 1891; in the normal college, 94.

**PRODUCTION.** The country is eminently adapted to the pastoral industries, though agriculture, still in an undeveloped condition, is practicable. Livestock: 52,168 horses; 546,829 cattle; 844,214 sheep; 157,888 swine. Gold (discovered 1871) constitutes the wealth of the country; diamonds, coal, silver, and other metals are found, and iron is known to exist. Output for four years (gold, fine ounces; diamonds, carats; coal, tons) below:

	Gold	Diamonds	Coal
1906 .....	5,792,823	1,069,392	2,892,404
1907 .....	6,450,740	2,062,855	2,883,423
1908 .....	7,059,649	2,022,687	3,012,692
1909 .....	7,299,413	1,877,486	3,623,656

Value of diamond output in 1908, £1,549,815; of coal, £794,949. Total value of gold output, from 1884 to June, 1908, £211,535,995. Persons

employed in the mines in March, 1909, 229,015 (21,814 whites, 10,527 Chinese, 196,674 Africans). In 1904 an ordinance was enacted introducing Chinese labor for the mines. In December, 1905, further immigration of Chinese was prohibited, and steps were taken in 1906 to exclude them altogether. In February, 1908, the Chinese employed in the mines numbered 30,069; in March, 1909, 10,527; in January, 1910, only 1908 were left; and by March, 1910, the last Chinaman had left the Rand.

**COMMERCE, FINANCE, ETC.** Commercial and financial totals for three years are given below, the trade (including bullion) being for calendar years, revenue and expenditure for the fiscal years 1907-8, 1908-9, 1909-10:

	1907	1908	1909
Imports ....	£15,758,944	£16,196,692	£17,010,807
Exports ....	31,268,276	33,323,590	34,128,956
Revenue ....	4,651,532	4,670,218	5,585,637
Expenditure ..	4,415,476	4,118,848	5,974,491
Debt, ..... June 30, 1908 ..	23,586,600		.....

Principal imports in 1908: machinery, £1,389,510; clothing, etc., £1,310,392; live animals, £1,275,717; chemicals and dynamite, £1,110,553; cotton goods, £574,299; wheat, etc., £499,605; iron and steel work, £498,145; meat, £493,913; sugar, £466,641; boots and shoes, £422,712; hardware, £394,475. Principal exports: gold, £29,615,059; diamonds, £1,977,521; wool, £226,908; horses and mules, £120,490; hides, skins, etc., £109,144; tobacco, £108,476; coal, £34,836. Trade with Great Britain amounted to £5,850,425 of imports and £31,787,070 of exports; with British possessions, £1,032,527 and £810,195.

The Central South African railways, which include the lines of the late Netherlands South African Railway, the Orange Free State Government Railways, and the Pretoria-Pietersburg Railway, connect the province with Delagoa Bay, Durban, and the Cape. Total length open for traffic at the beginning of 1909, 2627¼ miles; under construction, 64½. Length of telegraph lines (1909), 10,287 miles; of telephone wires, 28,615 miles; telegraph offices, 267; post-offices, 450. The post-office savings banks had (June 30, 1908) 55,705 depositors and £1,474,553 deposits.

**GOVERNMENT.** The government is administered by an administrator (1910, J. F. B. Rissik), aided by a provincial council, elected for three years. There is an executive committee of four members. The Transvaal Parliament was opened for the last time on April 6, with a speech from Lord Selbourne announcing the Royal assent to the Act of Union. The business to be settled by Parliament comprised ratification of railway schemes, the introduction of certain education bills, aiming at concentration of university education at Pretoria, a measure to regulate power schemes and the election of Senators to the new Federal Parliament. See SOUTH AFRICAN UNION.

**TREAT, CHARLES HENRY.** An American public official, died May 30, 1910. He was born in Frankfort, Me., in 1841, and was educated at Bates College and Dartmouth College, graduating from the latter institution in 1865. On leaving college he entered the business of his father, which was that of a shipping merchant. He was engaged in export and import trade with the West Indies. He took part in

the political campaign for Hayes and Wheeler in 1876 and in the following year removed to Delaware, where he engaged in the manufacturing business. He was delegate at large to the Republican National Convention in 1888, and seconded the nomination of Levi P. Morton for Vice-President. He conducted the Republican campaign in 1888, which resulted in a Republican majority in the legislature for the first time in the history of the State and the election of the first Republican Senator from Delaware. He was the leading candidate for United States Senator, but was defeated by two votes. He afterwards removed to New York and from 1892 was active in the local politics of the city and State. From 1897 to 1905 he was collector of internal revenue for the second district of New York and from 1905 to 1909 was treasurer of the United States. Shortly after the war with Spain he became associated with New York capitalists and organized the Manila Navigation Company, of which he was president. He was also president of several other manufacturing and mercantile companies.

**TREE, LAMBERT.** An American jurist and public official, died October 9, 1910. He was born in Washington, D. C., in 1832 and graduated from the University of Virginia in 1855. In the same year he was admitted to the bar in Washington and removed to Chicago. He at once took a prominent part in Democratic municipal politics and until the time of his death was conspicuous in State politics and in national affairs. In 1864 he became president of the Chicago Law Institute, and five years later he was appointed to fill a vacancy in the Circuit Court of the State. He served in this position until 1874. He took an active part in the national campaign in 1884. He was a delegate to the convention which nominated Cleveland. He was a candidate for the United States Senate following the election of President Cleveland and was defeated by one vote by General Logan. He was also a candidate for Congress in 1878 and 1880. In 1885 he was appointed United States Minister to Belgium, serving until 1888, when he became Minister to Russia, serving there one year. He was appointed in 1891, by President Harrison, Democratic member of the Monetary Commission, which met in Washington. Judge Tree acquired a large fortune, much of which he spent in beautifying the boulevard and park system of Chicago. He presented to the city two bronze statues, one of an Indian warrior on horseback, called "A Signal of Peace," and a bronze statue of La Salle. He had large holdings in Chicago real estate. He was director in many financial institutions in Chicago and in many public and philanthropic associations.

**TREMAIN, HENRY EDWIN.** An American soldier and author, died December 9, 1910. He was born in New York City in 1840 and graduated from the College of the City of New York in 1860. He enlisted during the Civil War as a private in the Seventh Regiment and served until the close of the war. In 1865 he was brevetted lieutenant-colonel of volunteers for gallant and meritorious services and also received the brevet of colonel and of brigadier-general of volunteers. He was awarded the Congressional Medal of Honor in 1892 for distinguished conduct at the battle of Resaca, Georgia, in 1864. From 1873 to 1877 he was

first assistant to the United States Attorney of New York. He took an active part in Republican politics and was several times president of the Republican Club of New York City. He was a member of several learned societies. He wrote *Last Hours of Sheridan's Cavalry* (1904); *Two Days of War* (1905); *Sectionalism Unmasked* (1907), besides many papers on military, legal and economic subjects.

**TRENGGANU.** See **FEDERATED MALAY STATES.**

**TRENT, W. P.** See **LITERATURE, ENGLISH AND AMERICAN, Essays and Literary Criticism.**

**TRINIDAD AND TOBAGO.** Two islands of the West Indies, which constitute a British colony. Area of Trinidad 1754 square miles (population in 1906, 306,830; estimated in 1910, 332,671); of Tobago, 114 (1906, 20,570; 1910, 18,751). Capital, Port of Spain (60,000 inhabitants), with a splendid harbor. Other towns of Trinidad: San Fernando (7610) and Princetown (4497); of Tobago: Scarborough (1370) and Plymouth. Of the total area (1,195,500 acres), about 559,800 have been alienated. Acres under sugar-cane, 59,000; cacao, 226,880; coffee, 4100; cocoanuts, 17,520; pasture, 20,900. From the asphalt lake near La Brea, 133,208 tons of asphalt were exported in 1908-9 (£154,363); cacao export, 51,575,104 pounds. Other products and exports are sugar, molasses, rum, bitters, timber, and fruits. Imports (1909), £3,288,826; exports, £3,218,092. Revenue (1909-10), £853,565; expenditure, £863,254; debt, £1,060,093. There are 89 miles of railway, and 1147 of telegraph and telephone line. Governor (1910), Sir G. R. LeHunte.

**TRINITY COLLEGE.** An institution of higher learning at Hartford, Conn., founded in 1823. The students enrolled in 1910-11 numbered 225, while the faculty numbered 32. Among the additions to the faculty were the following: Le Roy C. Barrett, Ph. D., professor of the Latin language and literature, vice Frank G. Moore, resigned; Max Withrow Morse, Ph. D., professor of biology, vice Charles L. Edwards; Walter L. Barrows, instructor in geology; Archer Eben Knowlton, instructor in mathematics and physics; and William H. Worrell, Ph. D., instructor in Biblical literature. During the year 1909-10 the endowment of the college was increased by pledges varying in amount from \$1 to \$100,000, the total number of subscribers being 1400, and the total amount pledged being \$500,000. The total productive funds of the college amount to about \$1,225,000. The president is F. S. Luther, LL.D.

**TROPICAL DISEASES.** The immense amount of medical work incident to the sanitation of the Panama Canal Zone not only has developed many trained observers, but has given us a much better knowledge of the diseases found in the American tropics. Now that yellow fever has been vanquished and malaria reduced to a minimum, closer attention is being given in the large hospitals in Colón and Ancon to the study of other tropical affections, particularly intestinal parasites. Brayton investigated the subject of bilharziasis (from Bilharz, the discoverer), a disease hitherto supposed to be confined to the old world, particularly Egypt. It has been called the Egyptian disease, a majority of the victims being natives of this country. The causative agent, a trematode of the genus *Bilharzia*, has spread from Egypt to Tunis, the Sudan, Abyssinia, Uganda,

the Congo, Natal, etc. It is also found in Mecca, and from here it is distributed by pilgrims to the rest of Europe, and to Syria and Russia. The seaports of China and India are also known to be infected, and there are many cases in the Philippines. The presence of the disease in America is believed to be due to importation by Hindu laborers who work in the English colonies of Trinidad and British Guiana. The disease is not widely prevalent in the Canal Zone, having been found only 104 times in 30,000 stool examinations, from 1904 to 1909.

The *Bilharzia hæmatobia*, or human blood fluke, is a two-sexed trematode, about one-third of an inch in length, which lives on and in the blood, being provided with suckers, and the male having spinous papillæ upon the back, by means of which it clings to the walls of the veins. The parasite is indigenous to fresh water, and is supposed to be taken into the human organism through drinking water, eating shell fish, or possibly by bathing. Workmen who are much in the water are mostly affected.

The portal vein is the principal resort of the blood fluke, but it has also been found in the liver, in the intestinal veins, in the bladder walls and in pelvic blood vessels. Attaching themselves to the walls of the urinary passages, the flukes sometimes occasion dangerous hemorrhage into the bladder, as well as cystitis and urethritis. When the intestinal tract is invaded, the symptoms may resemble those of tropical dysentery. Colloidi in Egypt showed that *Bilharzia* was the starting point of urinary calculi in 80 per cent. of one series of cases. The victim of this disease becomes weak and cachectic, but recovers under treatment for the urinary or intestinal trouble.

Further investigations into the intestinal parasitology of the Filipino were made. Brewer reported the finding of intestinal parasites in over 90 per cent. of children examined. The worms, in order of frequency, were: *Ascaris lumbricoides* (76.4 per cent.), *Trichiuris trichiura* (51 per cent.), hook-worm (35 per cent.), and cestodes and amœbæ in about 5 per cent. of all cases examined.

An interesting fact concerning Malta fever has recently come to light, namely that the disease is spread almost entirely by goats. These animals do not themselves discover any symptoms, but their milk contains the germs of this disease, and through this medium it finds its way into the human victim. The prohibition of the use of goats' milk has completely abolished the fever in the soldiers and sailors at Malta, although the native population, who refuse to believe that the disease is spread in this way, still continue to suffer. Last year the Sleeping Sickness Bureau of the Royal Society found that goats, imported to Lake Albert Edward in Uganda, were spreading the disease among the native population in this district, and representations were made to the British House of Commons to prevent the exportation of Maltese goats. Some of these animals, imported into the United States in 1906, were found to be infected, and all had to be slaughtered, even the kids born here, to prevent the spread of the disease.

A new form of trypanosomiasis was reported by Chagas of Brazil. It is caused by a trypanosoma, which he has named *Schizotrypanum cruzi*. The parasite was found in the

hind gut of the barbiero, a large nocturnal biting bug infesting the dwellings of the poorer classes. This bug belongs to the order *Hemiptera*, suborder *Heteroptera*, family *Reduviidae*, genus *Conorrhinus*. It is about an inch long and bites its human victim chiefly in the face. Children, especially, are attacked, and the course of the illness is characterized by extreme anemia, oedema, general or partial enlargement of the lymph glands, thyroid, and spleen, and functional disturbances of the nervous system. Some of the victims become imbeciles. The mortality is high, death occurring with convulsions. The disease differs from African trypanosomiasis (see SLEEPING SICKNESS) in that somnolence is not a symptom. See also BERIBERI and PELLAGRA.

**TROWBRIDGE, W. R. H.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**TRUAX, CHARLES HENRY.** An American jurist, died January 14, 1910. He was born in Durhamville, N. Y., in 1846, and was educated at Vernon Academy and at Oneida Seminary. After a period of teaching school he spent two years at Hampton College, but did not graduate. After leaving college he again taught school and was for a time principal of the Union School in Camden. In 1868 he removed to New York City and was admitted to the bar in the following year. He became interested in politics and in 1877 ran for alderman on the anti-Tammany ticket and was defeated. In 1880 he was elected judge of the Superior Court, in which position he served until 1895, when he was elevated to the Supreme Court bench. During his occupancy of the bench he handed down some notable decisions.

**TRUST COMPANIES.** See LOAN AND TRUST COMPANIES.

**TRUSTS. PRESIDENT TAFT'S MESSAGE.** In a special message of January 7, 1910, President Taft urged upon Congress the modification of the Anti-Trust act of 1890, so as to permit the Federal incorporation of concerns engaged in interstate commerce. The President argued that large aggregations of capital are not always unfair and are often necessary, in the undertaking of modern business. Yet under existing laws it is necessary for the Department of Justice to begin investigation whenever it is supposed that violations of the anti-trust law exist. This disturbs stockholders and wage-earners, as well as business in general. Such a law as he proposed, giving the government control of stock and bond issues with access to complete information regarding business method of incorporating firms, would lead to a distinction between good trusts and bad ones. Concerns not seeking a Federal charter would become an object of general suspicion. The President did not, therefore, think his proposal would reduce the value of the Sherman act in preventing the suppression of competition or the control of prices. A bill drafted under the President's supervision was presented in Congress. It provided for the voluntary incorporation of State concerns with at least \$100,000 capital stock; it provided that the Commissioner of Corporations must give his approval to sections in the charter dealing with the rules for conducting the affairs of the corporation; it gave Congress power to alter the character of any chartered corporation and to repeal the charter; other provisions restricted

the stock allowed, required annual reports on specified matters, and authorized the holding of stock and the control of kindred State corporations under certain restrictions.

This proposal was believed by some to be the most important constructive plan to be undertaken by the Taft Administration. It was pointed out that at present many large concerns are forced to have subsidiary corporations in many States owing to State laws discriminating against companies organized in other States. Then it is desirable to permit corporations to realize the advantages of consolidation. The President hoped that it would be possible to distinguish those combinations which realize desirable economies from those which stifle desirable competition.

The opposition to this proposal was based on the contention that it would weaken the Sherman Act and that only good trusts would submit, while bad ones would continue to take their chances under the existing law. Actual debate of the proposal in Congress was delayed, awaiting the decisions of the Supreme Court in the Tobacco and Standard Oil cases.

**OTHER PROPOSALS.** Meanwhile other proposals were made for regulating trusts. These proposals agreed that combination is frequently desirable, that even monopoly in some instance is more economical than competition, but that in any case government regulation is necessary. It was proposed that Federal incorporation be required; but the objection was made that this goes farther than is necessary since many corporations are efficiently regulated by competition. A still different proposal was that any trust convicted in court of harmful restraint of trade be declared an objectionable monopoly and, therefore, subject to the Bureau of Corporations in the same manner railways are now subject to the Interstate Commerce Commission. Under this plan the Bureau would have power to prevent extortionate prices, to prevent discrimination in the treatment of customers from different sections of the country, to examine books, and otherwise to control and regulate.

This proposal was objected to, on the one hand as too drastic, and on the other as likely to prove ineffective because dependent upon the delays and uncertainty of court procedure. A still further proposal made by Mr. James J. Hill was that the one needed step is a Federal commission with authority to prevent over capitalization. He pointed out the advantages of combination in removing the evils of unrestricted competition, steadying prices, reducing wastes and giving steadier employment and safer investment to workingmen. Holding that public opinion exerts effective control in the long run, and that under the operation of economic law evil combinations will be destroyed in competition with sound ones, he declared that the prevention of over capitalization will safeguard investors, remove the excuse of many companies for maintaining high prices, and prevent the concealment of enormous profits by moderate dividends on watered stock.

That the attitude of the Administration had changed during the year was shown by the recommendation in the President's annual message in December that a general attempt to revise the anti-trust law be postponed, while an effort be made to try the effect of enforce-

ment of the laws existing. He said, "It seems to me that the existing legislation with reference to the regulation of corporations and the restraint of their business has reached a point where we can stop for a while and witness the effect of the vigorous execution of the laws on the statute books."

At the close of the year the Bureau of Corporations was engaged on investigations into the steel, tobacco and lumber industries, the concentration of the ownership of water power, and the International Harvester Company.

**AMERICAN SUGAR REFINING COMPANY.** There were several prosecutions carried on against this company during the year. In the first place there were the cases growing out of the underweighing frauds which had been discovered in 1907, mainly through the investigations of Richard Parr. The company refunded to the government over \$2,600,000 in back duties. On January 4, certain employees who had already been prosecuted were sentenced to a year in prison. The court decided upon a small sentence because they were workingmen with families. On January 14, the grand jury at New York returned indictments against George R. Heike, secretary of the company, Ernest W. Gerbracht, superintendent of the Williamsburg refinery, James V. Bendernagel, cashier of the refinery, and three others employed upon the weighing docks. During their trial in June, Oliver Spitzer, the dock superintendent who had been previously convicted and sent to the Federal prison at Atlanta, Ga., and who had made a full confession, appeared as witness for the government, having been pardoned by President Taft. He recounted the history of the frauds and showed that Heike and others used both the true and the false weights in the offices of the company. Heike was convicted on one count of the indictment; Gerbracht on six counts; the jury disagreed as to Bendernagel; the other three defendants made confession of guilt. In September, Gerbracht was sentenced to two years in the Atlanta prison, with a fine of \$5000. Heike was sentenced to imprisonment for eight months and to pay a fine of \$5000. Both men prepared appeals. In June Richard Parr was awarded \$100,000 for his services in discovering the weighing frauds.

Another important case was that growing out of the suppression of the Pennsylvania Sugar Refining Company by the Sugar Trust. Mr. Adolph Segal, who owned a controlling interest in the Pennsylvania Company had, in 1903, secured a loan of \$1,200,000 from the trust through its agent, Gustav Kissel. Segal gave as security bonds and stock of his company with the added condition that its plant should not be operated until the loan was paid. Various individuals together with Kissel and Segal's agent, Harned, were indicted under the criminal section of the anti-trust law. Others pleaded not guilty, but Harned and Kissel entered the plea that the statute of limitations had run in their favor, since their alleged conspiracy to restrain trade had ended when the Pennsylvania refinery was closed in January, 1904. This plea, being sustained in the Circuit Court, was taken to the Supreme Court where it was argued in November. The government contended that the alleged offence was a continuing one, and that the defendants, having started a monopoly, must be liable for its

effects so long as the monopoly continued. The defense argued that the offense was discontinuous and could be renewed only by some overt act; and that, since a criminal intent and act must occur, the government could not hold men now guilty for intentions held years ago. The court held that a conspiracy does not end on the day when the conspirators make the agreement, but continues as long as criminal acts are committed in pursuance of the conspiracy. It said, "a conspiracy may have continuance in time." The case was, therefore, sent back to the court of original jurisdiction, where a new trial will be had to determine whether the acts of which the defendants are accused are illegal.

The same company was sued for several hundred thousand dollars of water rates by the city of New York, for water which the company had obtained secretly and fraudulently. It was stated that only a small portion of the company's water supply was secured through metered pipes. On December 22, there was reported a government investigation bearing on frauds in the drawback system, that is, tariff rebates on exports of sugar made out of imported raw sugar. It was claimed that the government had been defrauded of several million dollars in this way by the company. Collector of Customs Loeb and the United States District Attorney at New York recommended that the government accept \$700,000 offered by the trust for the drawback frauds at the Brooklyn refinery.

Meanwhile investigation was begun in December, 1909, to determine grounds for a suit to dissolve the trust as an illegal combination in restraint of trade. This investigation, according to a special report sent to Congress in May, "followed the corporate history of nearly 100 corporations, beginning in 1887 \* \* \* with the examination of the acquisition by the trust of each and all independent cane-sugar refineries up to the present time." In March United States Attorney Wise at New York met with resistance to subpoenas and efforts on the part of officials to obtain immunity. He resorted to *subpœnas duces tecum* addressed to the corporation itself. Attorneys for the corporation sought to have these quashed on the ground that it could not be required to incriminate itself. Judge Lacombe decided in favor of the government, thereby establishing grounds for a new procedure which may greatly strengthen the government in trust cases. The company produced the desired books and papers but took the matter to a higher court. To aid in the examinations carried on in New York City, grand jury inquiries were held in Colorado and in California. It was announced several times during the year that the government was about to begin this suit; but this was not done owing to the important bearing the decisions of the Supreme Court in the Tobacco and Standard Oil cases would have on such procedure.

**MEAT PACKERS.** Various suits were begun against meat packers in different parts of the country. In March two indictments were returned in the Northern District of Illinois against the National Packing Company, its constituent companies, and their officers. One sought dissolution of the combination, the other, punishment under the criminal section of the anti-trust law. The civil suit was be-

gun first, but on December 27, on petition of the government, Judge Kohlsaat of the District Court, dissolved the suit. The object, as stated by the government's attorney, Edwin W. Sims was to expedite the criminal proceedings. In September special criminal indictments were brought in the same court against Louis F. Swift, Edward F. Swift, Charles H. Swift, Francis H. Fowler, Edward Tilden, J. Ogden Armour, Arthur Meeker, Thomas J. Connors, Edward Morris, and Louis H. Heyman, charging them with maintaining a combination and unlawful conspiracy in restraint of interstate commerce and a monopoly of the trade in cattle, sheep and hogs, and in the sale of fresh meats. The indictments stated that Swift & Co. had 323 branch houses, Armour & Co., 316, and Morris & Co., 82; and that the National Packing Co. was their central agency.

In April, at Savannah, Georgia, the Armour Packing Co., Swift & Co., Morris & Co., Schwarzschild & Sulzberger, Cudahy & Co., and others were charged with combining to control prices and to destroy competition in the fresh meat trade. Proceedings were criminal.

In October, at Boston, criminal suit was begun against John Reardon & Sons Co., the Consolidated Rendering Co., and individuals on the ground that they had conspired to divide the New England territory among themselves, so as to avoid competition and to raise prices in the rendering business.

**READING AND OTHER RAILWAYS.** In June 1907 suit was begun against the six coal carrying roads which compete for the traffic from the anthracite coal region to tide water, their subsidiary coal companies and about forty individual coal companies. Thereafter two years were spent by an examiner in taking testimony. A hearing was held before the United States District Court of the Eastern District of Pennsylvania, in February, 1910, before Justices Gray, Buffington, and Lanning; and the opinion of the court was delivered early in December. In the majority opinion, which was written by Justice Gray, the charge of the government that here was a general conspiracy among defendants to control the output and prices of anthracite coal was not sustained; nor was the government encouraged in its suits against the Reading Railroad for its absorption of the Jersey Central, and against the Erie for its absorption of the New York Susquehanna, and Western. The government had further charged that the agreement between the roads and the independent operators whereby the latter agreed to sell their product to the former at 65 per cent. of the tide-water price, was a violation of the Sherman Act, and asked that such contracts be enjoined. The court ruled that there was no violation of the Sherman Act since the contracts were intrastate commerce and were contracts between individual roads and individual shippers; the injunction applied for was, therefore, denied. A third charge of the government was that the Temple Iron Co. was a combination of these roads in violation of the Sherman Act. With reference to this the court held that this company, by preventing the building of a road by independent mine operators, was a combination in restraint of trade and the company was enjoined from the further continuance of

such prevention. Justice Buffington agreed with the foregoing opinion in so far as it relates to the Temple Iron Co. but he held that the 65 per cent. contract with the so-called independent operators was likewise illegal, since these contracts were made after the formation of the Temple Iron Co. and resulted largely from this formation. The final form of the decree issued on December 20 enjoined the railways owning stock in the Temple Iron Co. from exercising control over it. As these roads owned all the stock of the company this order virtually meant the disorganization of the latter. Both sides filed notices of appeal to the Supreme Court. On December 30 it was announced that the roads had organized their collieries as separate companies. All of these companies had the same president, Mr. A. F. Law, previously manager of the coal interests of the Temple Iron Company. He retained his position as treasurer of this company. While control was thus unchanged in fact, it was thought these formal changes would help the case on its appeal.

**NIGHT RIDER CASES.** After very careful inquiry into numerous complaints of violence in the Kentucky tobacco region, indictments were brought in the United States Circuit Court, Western District of Kentucky, in February, 1910, against a number of individuals charging them with interference with interstate shipment of tobacco. Eight of these defendants were tried and convicted in April. Their fines aggregated \$3500. See KENTUCKY.

**COTTON CORNER.** In the spring the grand jury in New York returned indictments against James A. Patten, Eugene Scales, Frank B. Hayne, William P. Brown and Robert M. Thompson charging them with conspiracy to monopolize interstate commerce in raw cotton, with withholding it from the market for speculative purposes, and with selling to consumers at arbitrary and excessive prices. These suits were the outgrowth of complaints which claimed that cotton mills were forced to close as a result of the extraordinarily high price of raw cotton. The case was deemed of considerable importance because it was the first attempt under the Sherman Act to control the prices of articles dealt in on commercial exchanges. The cases were still pending at the end of the year.

**WINDOW GLASS TRUST.** In April indictments were brought at Pittsburg against all the officers of the Imperial Window Glass Company. This company was the agent of various manufacturers controlling about ninety per cent. of the hand-blown window glass produced in the United States. Since this combination was similar to that which had been declared illegal in the Wall Paper Trust case, the Attorney-General deemed it proper to bring suit under the criminal section of the law. This combination had increased prices about seventy per cent. in nine months. It controlled about eighty factories, five of which it had leased and dismantled. In a few months its profits were equal to four times its capital. It had also raised wages by forty-five per cent. On the ground that several of the concerns belonging to the price-making agreement had already withdrawn and because the defendants entered a plea of *nolo contendere* the court levied fines of \$2500 upon the company and \$500 upon each of the fifteen individual de-

fendants. The Attorney-General was considerably incensed at the leniency of the court in this case and thereafter more frequently sought sentences of imprisonment. He pointed out that the president of the Window Glass Trust had announced that the fine would be taken out of the employees and that a reduction of fifty-five per cent. in wages was made necessary by the breaking of the combination.

**PAPER BOARD ASSOCIATION.** An indictment was returned in the Southern District of New York in December, 1909, against the Albie Box Company and a number of corporations forming the Paper Board Association. This was declared to be a combination for restricting competition in the purchase of paper, for fixing uniform prices, and for increasing prices. The defendants pleaded guilty in February and were fined sums aggregating \$57,000. In April another petition praying for the dissolution of the combination was filed.

**ELECTRICAL TRUST.** On December 26, it was announced that the government was making preparations for a suit against the Electrical Trust. The change was conspiracy in restraint of trade under the patent law; suit was thus on a different basis from the other trust prosecutions. This so-called trust is composed of the General Electric and the Westinghouse Electric companies together with more than a score of minor concerns all interested in the manufacture of patented electrical supplies. It was expected that the first proceedings would be against the Association of Licensed Manufacturers of Incandescent Electrical Lamps, of which the two companies above mentioned and twenty-five minor companies were the components.

**BATH TUB TRUST.** The government brought suit in the United States Circuit Court in Baltimore to secure a permanent injunction against the Standard Sanitary Manufacturing Company and fifteen other concerns and thirty-two officers comprising the so-called Bath Tub Trust, to restrain them from continuing their price-fixing agreement. At the same time criminal proceedings against the participants were begun. This company was a combination of sixteen of the twenty manufacturers of sanitary enameled iron ware and controlled eighty-five per cent. of the business. It had practically forced some 200 jobbers to sign trade agreements to handle only the combine's products. On December 30, certain of the defendants offered to compromise the suit; the government to drop the criminal proceedings and the defendants to pay fines and agree to dissolve their combination. This proposal was rejected. At the same time it was announced that the combination was practically dissolved, since four of the parties to it had sent notices to the retail trade that they were no longer adherents to the price-fixing agreement.

**OTHER PROSECUTIONS.** Other prosecutions under way at the close of the year included the following: The suit against the Terminal Railroad Association of St. Louis, begun in 1905 had reached the Supreme Court. This association was charged with conspiracy to secure a monopoly of the terminal facilities at St. Louis. When the case was first tried in the Circuit Court, the four judges were evenly divided; the Supreme Court refused to hear it until judgment had been rendered by the Circuit Court; the latter then dismissed the government's petition,

and the case came again to the highest court on appeal. The suit to enjoin the Union Pacific Railroad Company from continuing its control of the Southern Pacific Railroad Company, was argued before the Circuit Court of the Eighth Circuit in October, but no decision has yet been rendered. Suit was begun in 1907 against E. I. du Pont de Nemours & Co. *et al.*, known as the "Powder Trust." An examiner to take testimony was appointed in September, 1908. The taking of testimony was completed and the case was soon to be presented to the Circuit Court of the Third Circuit. The suit begun in 1907 against the Reading Company and other anthracite coal carrying roads as a combination in restraint of the trade in the production and carrying of this coal was argued before the Circuit Court in the Third Circuit, but no decision was yet rendered. The suit against the American Naval Stores Company and others was begun in 1908; verdict of guilty was secured in 1909 against five individual defendants, and fines and imprisonment imposed; appeal was pending in the Circuit Court. The Southern Wholesale Grocers' Association and others were charged in June with attempting to control the trade of the Southern States in groceries and other necessities, and to prevent manufacturers from selling to wholesale grocers not members of the association. The case was pending in the Circuit Court in the Northern District of Alabama. Suit against the Chicago Butter and Egg Board including about 100 dealers, was begun in June. This was alleged to be a combination to control the prices of butter and eggs in the East and Middle West. Unfair and fraudulent trade devices were alleged. In the same month, at Cleveland, Ohio, suit was begun against the Great Lakes Towing Company, *et al.*, as a monopoly of the towing of vessels on the Lakes. This suit was deemed important because of the immense tonnage involved in the carrying trade of the Great Lakes; thus there passes through the Sault Ste. Marie Canal more than 100,000,000 tons annually. In July three concerns belonging to the National Umbrella Frame Company were fined \$1000 each in the District Court at Philadelphia for violation of the anti-trust law. In September three brick producing companies, their presidents and their sales agent, constituting the Brick Trust, were indicted at Chicago. This combination had furnished all of the city's brick for five years and the suit had city politics as its immediate background, though the companies did business in several States.

**STATE ACTIVITIES.** State authorities were also carrying forward efforts to control monopolistic combinations. In September in the Supreme Court of Missouri an ouster suit was filed against the International Harvester Company of New Jersey, a trust. The court's special commissioner to investigate declared that the company was formed for the purpose and with the effect of destroying competition. In September a State court of Arkansas declared the American Book Company not to be a trust. The State had brought suit for \$3,000,000 damages for violation of its anti-trust law. In New York eight directors of the Consolidated Milk Exchange were indicted in February for conspiracy to fix the wholesale price of milk. In March, 87 poultry dealers were indicted in New York City for conspiracy in restraint of trade. At about the same time, as a result of investigations into

the cold-storage business in New Jersey, that State brought suit against several packing concerns for illegal combination.

The Seal Ship Oyster System became so extensive by the close of 1910 that it had virtually established a monopoly of the bulk oyster trade, and was rapidly absorbing the in-the-shell trade of the Chesapeake Bay. It owned 30,000 acres of beds along Long Island Sound and Narragansett Bay, besides ninety-five per cent. of the 14,000-odd acres of the Blue Point beds of Great South Bay. It had 25,000 selling agencies. The capital of the concern was increased during the year to \$2,300,000 cumulative seven per cent. preferred and \$2,000,000 common stock.

**CANADA.** "An act to Provide for the Investigation of Combines, Monopolies, Trusts and Mergers" became effective in Canada, May 1. It was introduced by Minister of Labor, MacKenzie King, and was patterned in many respects after the Trades Disputes Act of 1907. It provided that, upon application of six citizens who complained against a corporation, a judge may order that a commission of three be named to investigate and render a decree. Such a commission is composed of one appointed by the complainants, one by the corporation, and the third by these two. This commission has the powers of a court to summon witnesses, administer oaths, and otherwise secure evidence. After extended inquiry the commission is required to publish a report, which must be accepted by the corporation within ten days upon penalty of a fine of \$1000 a day. The law also provides in lieu of such fine that protective duties may be withdrawn. Moreover, patents used to restrain trade or raise prices may be revoked.

See STANDARD OIL.

**TRYPANOSOMES.** See ENTOMOLOGY; also SLEEPING SICKNESS.

**TRYPANOSOMIASIS.** See TROPICAL DISEASES; also INSECTS AND THE PROPAGATION OF DISEASE.

**TSCHAIKOVSKY, NICHOLAS.** A Russian revolutionist who was acquitted on March 9 of the charge of revolutionary conspiracy and abetting plots against the life of the Czar. He was born in St. Petersburg about 1841 and was educated for a teacher. He followed this career for many years. He is one of the few remaining figures of the revolutionary movement in Russia from 1870 to 1875, and he is sometimes called "Father of the Russian revolution." He was the founder of the mother organization of the so-called "Tchaykovtzi" from which sprang a series of other revolutionary organizations which took part in the struggle between the Terrorists and Czar Alexander II. After being in prison several times he removed to the United States in 1875 and lived with a colony of farmers in Kansas for two years. He later went to Philadelphia and worked also as a carpenter in a shipyard in Chester, Pa. For a short time he was a member of a colony of Shakers near Mount Morris, New York. He then returned to Europe, but found it impossible to get into Russia, and in 1880 made his headquarters in London where he remained for many years. In the latter part of 1907 he returned to Russia and was at once arrested. He was imprisoned for a time, but released on bail of \$25,000. He had been in the United States in 1906 and made an address in New York City. He numbered among his friends many prominent Americans, and it was largely due to their influence that

he was released from prison pending his trial and was admitted to bail. His acquittal caused general surprise as it was almost universally assumed that he would be found guilty. His family and friends were so certain of his conviction that they donned mourning garments on the morning of the conclusion of the trial. Madame Breshkovsky (or Breschkowskaya), also a revolutionist, was tried at the same time on similar charges and was found guilty. Madame Breshkovsky was well known in the United States where she had many prominent friends. She was sentenced to be exiled.

**TSETSE FLY.** See SLEEPING SICKNESS.

**TUBERCULIN.** During the past few years, attention has been mainly directed to the value of tuberculin as a means of diagnosis rather than as a curative agency. The diagnostic possibilities of the substance having apparently been exhausted, a renewed interest manifested itself during 1910 as to its curative powers. Koch's "old" tuberculin, a simple glycerin extract of a filtered culture of human tubercle bacilli, proved to be the most reliable of several different forms of the serum. When a proper dose of this material was injected, or otherwise introduced into the circulation, a febrile reaction appeared, if tuberculosis existed in the individual so tested. The reaction to an injection of tuberculin was, therefore, looked upon as a proof, in clinically doubtful cases, of the existence of the disease. Further study showed that latent and harmless processes might cause a response to the tuberculin test, although they were of no clinical importance, and the subject could not, in fact, be considered tuberculous. Therefore, the test might be misleading. According to one observer, tubercle bacilli which were leading a saprophytic existence in the bronchial secretions of a patient suffering from cancer of the lung were responsible for a positive tubercular reaction and a mistaken diagnosis. It was formerly thought that the febrile reaction was a necessary and desirable phenomenon which attended the injection of tuberculin, and doses were gradually increased until such a reaction was provoked. Of late, the majority opinion has been that systemic reactions were both harmful and unnecessary. According to Gabrilowitch, Koch's "old" tuberculin contains not only the active curative principle, but certain toxic albuminous substances which are the cause of the reaction observed. Gabrilowitch, therefore, eliminated, by means of chemical reagents, these toxic constituents, and secured an active but nonintoxicating serum, which he called *tuberculinum purum*. With this, he was able to increase the dose rapidly, without giving rise to discomfort to the patient, or provoking a reaction. He reported that the remedy reduced fever, increased weight, induced healing, and lessened the number of tubercle bacilli in the sputum, in patients in the first and second stages of pulmonary tuberculosis. Deal went further, and used the remedy in advanced cases. He reported arrest of the disease in several cases, and a decided improvement in the symptoms of all.

Poppelmann, having in mind the same object—namely, that of administering tuberculin, while avoiding severe systemic reaction—used the von Pirquet technique of vaccination with tuberculin. The blade of a scalpel is dipped in the "old" tuberculin, and the droplet thus taken up is spread on the skin of the upper

arm. The skin is then scratched with a single stroke of the scalpel, as in ordinary vaccination. After the disappearance of local and general reaction another scratch is made, crossing the first. Then two more scratches are added on succeeding vaccinations. Poppelmann finds numerous advantages in this method over the usual more complicated techniques, in the mildness, constancy, and more gradual action of the tuberculin given in this way. He believes that the skin possesses certain biologic factors which enhance the curative and tonic action of tuberculin thus given. See VETERINARY SCIENCE.

**TUBERCULOSIS.** Robert Koch (q. v.), the discoverer of the bacillus of tuberculosis, died on May 27, 1910. His last word on the subject, a lecture before the Berlin Academy of Sciences, shortly before his death, dealt with the epidemiology of the disease and the causes which influence its death rate. Koch directed attention to the remarkable lowering of the mortality in recent years. In Prussia, and in fact in the whole of Germany, a decrease began in 1886, which has gone on steadily until, in 1908, the death rate had fallen 50 per cent. The discovery of the bacillus causing tuberculosis, established the fact of its transmissibility, and made possible intelligent preventive measures. A steadily progressing reduction in mortality started a few years after the discovery of the bacillus, except in a few places. In searching for the cause of this, Koch found that institutional care of the tuberculous—isolation—was the important factor and a better showing undoubtedly followed adequate sanitary facilities. In Great Britain, conditions are especially significant. The death rate from tuberculosis is decreasing in England and in Scotland, while in Ireland the mortality is slowly rising. Newsholme, investigating the question with the greatest care, reached the conclusion that the methods of caring for the tuberculous poor accounted for the difference. In England and Scotland, they are cared for in institutions, while in Ireland this is not always the case. In Norway, also, since special institutions were established, the death rate has fallen.

The character of living and sleeping rooms is also a determining influence in the spread of tuberculosis. In Germany, for example, the highest mortality is not in the poorest districts, but in the relatively prosperous places along the North Sea, where the beds are placed in small, cell-like rooms, from which air is carefully excluded during the night. Koch concludes that the decrease of tuberculosis is to be looked for largely from isolation of the tuberculous in especially equipped sanatoria, and from improvement of sleeping and living rooms.

The sixth annual meeting of the National Association for the Study and Prevention of Tuberculosis was held in Washington, D. C., May 2d and 3d. Reports to the Association showed that there had been a steady increase in the number of bodies organized to fight tuberculosis; State and local anti-tuberculosis associations had increased from 297 to 431, a gain of 134; the number of special dispensaries had grown from 222 to 286; the number of special sanatoria and hospitals increased from 294 to 393, and the number of beds for the tuberculosis cases had increased from 15,244 to 22,720; eleven State legislatures had enacted laws dealing with the disease. A report issued by the Association showed that the average cost

of caring for tuberculosis patients in thirty semi-charitable sanatoria scattered throughout the United States is \$1.67 per day. Expenses were twice as high in the West and Southwest as in the East. The aggregate expenditure was \$1,364,000, and the receipts \$1,548,000, 70 per cent. of which came from public appropriations and public contributions, and the remainder from patients. It was estimated that there are 300,000 indigent consumptives in the United States, and that it would cost \$50,000,000 yearly to take care of them in institutions.

Laboratory workers devoted a good deal of labor to investigating the question as to whether or not tubercle bacilli circulated in the blood of persons having localized tuberculous processes. Over a year ago Rosenberger announced that he was able to detect considerable numbers of the bacilli in the blood of practically all cases of tuberculosis. Although many other competent and careful observers declared that they were unable to confirm this report, Rosenberger still reiterated his findings, and the controversy remained unsettled. This led to the examination of water for tubercle bacilli, and it was demonstrated that "acid fast" bacilli closely resembling the tubercle bacillus existed (to what extent is still a subject of dispute) in water. It was also demonstrated experimentally that even when large numbers of bacilli were thrown into the circulation, they disappeared from the blood with great rapidity. See also VETERINARY SCIENCE.

**TUCKER, T. G.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**TUFTS COLLEGE.** An institution of higher learning at Tufts College, Mass., founded in 1852. In 1910-11 there were 1140 students enrolled in the several departments of the college, while the faculty numbered 172. During the year the faculty lost through death David Lee Maulsby (q. v.), professor of English literature and oratory. Alfred Church Lane, formerly head of the Board of Geological Survey of Michigan was appointed Pearson professor of geology and mineralogy. Mrs. Caroline S. Davies, formerly headmistress of St. Peter's School, Bayswater, London, was appointed dean of the women. Hinckley Gilbert Mitchell, D. D., was appointed professor of Hebrew and Old Testament exegesis. Colin Alexander Scott, formerly head of the department of psychology at the Boston Normal School, was appointed professor of psychology and education. Richard C. Jones, Ph. D., professor of English at Vanderbilt University, was appointed professor of English literature to succeed Professor Maulsby. Among the benefactions received during the year were those of Catherine Conant, \$5000; G. H. Frye, \$10,000; and Caroline D. M. Ballard, \$2000. The productive funds of the college amounted to about \$1,290,000 and the income to about \$53,000. Beginning with the year 1910-11, co-education in the college was discontinued and women are being provided for in Jackson College for Women. The President is F. W. Hamilton, D. D., LL. D.

**TUNGSTEN.** See ATOMIC WEIGHTS; also CHEMISTRY, INDUSTRIAL.

**TUNIS.** A French protectorate in northern Africa. Capital, Tunis.

**AREA, POPULATION, ETC.** Estimated area, 64,600 square miles; population (1908), 1,920,650 (1,703,142 natives—mostly Bedouin Arabs and Kabyles; 65,213 Jews, 38,770 French, 119,-

523 other Europeans). The capital has about 200,000 inhabitants (Europeans, 61,000). Public schools (1906), 184, with 22,366 pupils. The Mohammedans maintain 1424 primary schools, and a university at Tunis. The bulk of the population is Mohammedan, under the Sheikh-ul-Islam.

**PRODUCTION.** Agriculture is the chief occupation of the people. Area under wheat (1908), 1,087,258 acres (yield, 2,837,700 bushels); barley, 1,099,613 (6,313,882); oats, 1,005,713 (4,905,589). Olive groves cover about 200,000 hectares (exports, 1908, 16,796 metric tons of oil); cork forests, 202,600 (export, 3971 tons). In the south are about 1,250,000 date palms (export, 4631 tons). Wine output (1908), 2,200,088 gallons. Livestock (1909): 158,062 cattle; 833,562 sheep; 31,870 horses; 78,002 donkeys; 16,592 mules; 476,386 goats; 14,644 swine.

Mines in operation (1907), 32. Exports of mining products: phosphates (1908), 1,267,464 tons; iron, 74,299 (1907) copper ore, 937 tons; lead ore, 23,158; zinc ore, 32,487. Value of fisheries products (1907), 2,162,000 francs.

**COMMERCE, ETC.** The trade by countries in 1909 is seen below (values in millions of francs), with totals for three years:

	Imps.	Exps.		Imps.	Exps.
France .....	69.4	50.3	Tripoli .....	.8	.5
Gr. Brit. ....	9.4	16.8	Malta .....	.3	1.2
Algeria .....	9.4	4.7	N'lands .....	.2	2.2
Italy .....	5.4	18.8	Egypt .....	.2	1.3
Germany ...	3.4	2.6	Other .....	5.8	2.9
U. S. ....	2.4	.8			
Russia .....	2.1	.3	Imps. '09..	114,447,000 fr.	
Belgium .....	2.2	6.1	Imps. '08..	123,028,000 fr.	
Turkey .....	1.3	.1	Imps. '07..	102,860,000 fr.	
Switzerland .	1.2	...	Exps. '09..	109,166,000 fr.	
Aus.-Hun. .	1.2	1.2	Exps. '08..	94,155,000 fr.	
			Exps. '07..	103,361,000 fr.	

Principal articles of export (1909): phosphate, 28,405,000 francs; barley, 13,498,000; wheat, 4,923,000; esparto, 4,848,000; fish, 3,958,000; olive oil, 3,244,000; skins, 3,090,000; animals, 2,780,000; sponges, 1,902,000; wine, 1,445,000; woolens, 1,242,000. Vessels entered (1909), 12,609, of 4,156,119 tons. Length of railways (1909), 768 miles; telegraph lines, 2576; wires, 8917; offices, 132; post-offices, 415.

**FINANCE AND GOVERNMENT.** Estimated revenue (1910), 65,987,948 francs (monopolies, 14,637,000; indirect taxes, 14,128,700; direct taxes, 11,910,600; domains, 2,921,800; various, 3,602,240; extraordinary, 18,781,608). Estimated expenditure, 65,985,614 francs (finance, 26,420,535; public works, 21,562,698; administration, 6,466,725; instruction, 3,716,604; posts and telegraphs, 3,583,460; agriculture, etc., 2,723,780; army, 1,151,712; various, 360,000). Debt (end of 1906), 232 181,500 francs.

The reigning bey is Sidi-Mohammed en Nasser, born July 14, 1855; succeeded, May 12, 1906. Heir-presumptive, Sidi-Mohammed el Habib, born August 13, 1858. French resident-general (1910), G. F. Alapetite.

**TUNNELS.** The year 1910 was notable for the completion of large and important tunnels, particularly the East River and the Hudson River tubes of the Pennsylvania Railroad. These were put in operation during the year, as mentioned under RAILROADS. Also the Detroit River tunnel, whose electrical equipment was described in the 1909 YEAR BOOK, was regularly opened for both passenger and freight traffic.

**TRANS-ANDINE TUNNEL.** In South America,

the inauguration of traffic through the Trans-Andine tunnel marked the establishment of rail communication between the two oceans and joined Chile and Argentina by a trip of not longer duration than thirty-four hours for passenger trains. This tunnel is at an elevation of 10,600 feet above sea-level, and is on the Chilean side of the international boundary. It is about two miles in length and of single track width.

**MONT D'OR TUNNEL.** Between France and Switzerland work was commenced on a tunnel through Mont d'Or, to avoid a long detour that now exists, carrying the line over the steep grades of the Jura mountains by way of Pontarlier. In winter, there was much interruption to traffic on account of snows on the portion of the route between Frasné and Vallorbe; and the new line, although but little shorter, will save much time. The two governments have granted a subsidy of \$2,250,000 for the work which was being executed by the Paris, Lyons & Mediterranean system. As the tunnel was to be about ten miles in length, electrical operation, probably with three-phase alternating current, will be used.

**LOETSCHBERG TUNNEL.** Another difficult and costly undertaking in Switzerland was the tunnel being constructed through the Loetschberg, one of the Bernese Alps, which would bring the railway line from Berne by way of Spiez on Lake of Thun, to Brig, at the north portal of the Simplon tunnel; and will bring the line from Italy into direct communication with the region around Berne and western Switzerland. This tunnel under the Loetschberg will be 9.04 miles long from portal to portal, of which distance there will be 7.6 miles of 0.7 of 1 per cent. grade, from the north portal, then 1975 feet level, followed by 6.3 miles of descending grade partly 0.24 of 1 per cent. and partly 0.38 of 1 per cent. until the south portal is reached. In addition to this there are three curves of 3608 feet radius, a portion of the line having been re-located after construction started on account of a disastrous cave-in at a point where it crossed a prehistoric gorge.

Both the north and south approaches of the tunnel involve unusual difficulties. From Frutigen, 34¼ miles from Berne, it is 13.6 miles to the north portal of the tunnel, and of this distance, only one-tenth is level track, and two-thirds of it is on 2.5 and 2.7 per cent. grades. Furthermore, one-half of this 13.6 mile stretch is curved, the radii ranging from 984 feet to 4593 feet; and there are thirteen bridges and viaducts and twelve tunnels, two of which are 3280 feet long. One of these tunnels is noteworthy because it is helicoidal, and another is 4478 feet long and makes a right-angle bend in the line where it traverses a mountain in a group to the north of the Loetschberg. Between Brig and the south portal there will be eleven bridges and 21 tunnels, one ½ mile in length, the tunnels constituting 27 per cent. of the length of the south approach.

The existing line from Berne and Spiez to Frutigen, 34¼ miles, is operated by steam locomotives, but from Frutigen, through the tunnel and its approaches and eventually to Brig, 71¾ miles, alternating current, 2000 horsepower electric locomotives will haul trains, obtaining power from overhead conductors on catenary supports from transverse overhead bridges at 15,000 volts, single-phase. The main tunnel will be double tracked throughout. This

great undertaking is being assisted by the Federal government to the extent of \$1,200,000, and it is hoped to have it in operation in the early part of 1913. The construction of the tunnel, including drills, pumps, and ventilating blowers, is entirely by means of compressed air furnished from two compressing plants; and as the work progresses the debris is removed in cars hauled by compressed air locomotives. See also **AQUEDUCTS**.

**ELBE TUNNEL, HAMBURG.** In Germany, a tunnel was under construction during the year 1910 for the purpose of connecting the two parts of the city of Hamburg, separated by the river Elbe. The tunnel consists of two tubes 19 feet in diameter and 20 feet apart laid about 65 feet below mean tide level of the river. The tubes are of steel, the sections riveted together and lined with concrete. Compressed air was employed during the progress of the tunneling, and at each end there is a vertical shaft to the surface of the street, 72 feet in diameter and supplied with six elevators. Two elevators were to be used exclusively for heavy and bulky vehicles, two for those of medium size and weight, and two for passengers only. It is expected that the tunnels will be in use in the spring of 1911. The total estimated cost was \$2,400,000.

**TURANITE.** See **MINERALOGY**.

**TURBINE.** See **STEAM ENGINE** and **SHIP-BUILDING**.

**TURKEY, or THE OTTOMAN EMPIRE.** A constitutional monarchy in southeastern Europe, southwestern Asia, and northern Africa. Capital, Constantinople.

**AREA AND POPULATION.** The area and population (both estimates), not including the nominal dependencies or tributary states of Egypt, Crete, Cyprus, and Samos (qq. v.), are given below:

	Sq. Miles	Pop.
Turkey in Europe .....	65,367	6,130,000
Asia Minor .....	193,600	9,089,000
Armenia and Kurdistan .....	72,000	2,471,000
Syria .....	114,600	2,890,000
Mesopotamia .....	131,700	1,398,000
Arabia .....	170,300	1,050,000
Turkey in Asia, total .....	682,200	16,898,000
Tripoli and Benghazi .....	405,800	1,000,000
Total .....	1,153,300	24,028,000

There are in European Turkey about 2,000,000 Turks, nearly as many Slavs, 1,000,000 Albanians, and large numbers of Greeks. Wallachians, Jews, and Gypsies constitute most of the remainder. About 2,500,000 are Mohammedans; in Asia, the majority of the population; in Tripoli and Benghazi, almost the entire population. Constantinople has approximately 942,900 inhabitants (with suburbs, 1,106,000); Salonika, 144,200; Adrianople, 125,000; Smyrna, 225,000; Damascus, 200,000; Beirut, 185,000; Aleppo, 135,000; Bagdad, 125,000; Jerusalem, 115,000; Medina, 111,000; Trebizond, 100,000; Mecca, 85,000.

Primary instruction, free and nominally compulsory, is largely in the hands of the Mohammedan priesthood, and is extremely deficient. Secondary schools, in a few of which French or English is taught, are not numerous, and special schools are rare. Schools of all kinds

are estimated at 36,230, with about 1,331,200 pupils. The University of Constantinople (founded on paper in 1900) has not yet been realized. Besides Mohammedans, there are in the empire Orthodox Greeks, Armenians, Roman Catholics, Greek Uniates, and other Christians, and Jews.

**PRODUCTION.** The soil is generally fertile, but little progress has been made in agriculture, though it is expected that large tracts will be brought under cultivation by an irrigation scheme to be completed in (probably) five years. Primitive methods are employed, and the title and customs system effectually cripples incentive. The chief cultivated products are cereals, tobacco, cotton, olives, almonds and other nuts, and various fruits. Tobacco crop (Latakia district) in 1909, 3,300,000 pounds. Estimated area under tobacco in all Turkey in 1909, 107,368 acres (1908, 120,567), yielding 74,445,244 pounds (1908, 108,248,904), an average of 694 lbs. per acre (898). Unofficial estimates place the average olive-oil yield at about 45,000 tons (season of 1908-9 much less—about 22,500 tons); the valonia crop, at 140,000,000. The world's supply of Mocha coffee comes from Yemen; it is all grown for export, as the Yemen Arab never uses it himself. About 21,000,000 acres are under forest (in European Turkey, 3,500,000)—pine, fir, beech, oak, cedar, sycamore, chestnut, walnut, etc. Sheep-raising is a prominent industry. Silk is produced, as well as carpets, shawls, leather, firearms, cotton and woolen goods, etc. The fisheries are valuable.

The extensive mineral resources are little developed. The government silver mines produce about 2600 kilos of silver and 400 tons of argentiferous lead annually; output of silver (all Turkey) in 1907, 67,351 fine ounces. Chrome, manganese, antimony, and copper ores are exported. Other mineral products are coal and lignite (400,000 tons annually), iron (40,000), iron pyrites (83,000), gold (226 ounces), salt (335,923 tons), borax (7000), meerschaum, mercury, kaolin, and arsenic.

**COMMERCE, ETC.** Total imports and exports for 1909 are given at £T22,230,000 and £T26,100,000 respectively (the Turkish pound is worth \$4.40); 1908, £T25,100,000 and £T21,315,000. No details of the principal articles of trade are available later than for the year ended February 28, 1906, as given in pounds Turkish below:

Imports	Exports
Cottons..... £T4,090,000	Raw Silk*.. £T2,930,000
Sugar..... 2,840,000	Raisins..... 2,350,000
Cereals, etc..... 1,560,000	Cereals, etc. 1,880,000
Linen..... 1,045,055	Mohair..... 914,000
Yarn..... 1,470,000	Figs..... 902,279
Woolens..... 1,300,000	Coffee..... 889,004
Rice..... 1,077,243	Opium..... 729,127
Petroleum..... 1,037,198	Skins, etc..... 730,000
Coffee..... 946,570	Valonia..... 625,224
Cashmere..... 639,820	Vegetables..... 590,000
Carpets..... 570,000	Minerals..... 554,082
Iron Mfrs..... 550,000	Fruits..... 550,000
Iron..... 490,000	Carpets..... 546,050
Paper..... 390,000	Cotton..... 512,575
Timber..... 388,418	Wool..... 500,000
Yarn (other)..... 360,000	Eggs..... 503,061
Drugs, etc..... 357,495	Olive Oil..... 420,802
Leather..... 341,946	Dates..... 340,000
Skins, etc..... 330,000	Sesame..... 310,000
Animals..... 320,000	Nuts..... 290,000

\*And cocoons.

The trade by countries is as follows in thousands of pounds Turkish for the same year:

Imps.	Exps.	Imps.	Exps.
Great Brit..... 10,992	6,330	Persia..... 734	65
Aus. Hun..... 6,516	2,137	Neth's..... 597	581
France..... 2,669	4,811	Greece..... 561	644
Italy..... 2,446	996	Bulgaria..... 467	756
Russia..... 1,820	594	U. S..... 288	592
Germany..... 1,325	1,228	Other..... 243	251
Belgium..... 986	488		
Egypt..... 926	....	Total Imps. £T31,366,021	
Rumania..... 795	400	Total Exps. 19,672,370	

The above figures are exclusive of the trade in tobacco, of which the imports are detailed as follows: 6,926,631 cigars, 2867 kilos of tobacco, 17,796 of snuff, and 1,237,404 of tumbéki; exports: 3,465,958 kilos sent to countries within the empire, and 18,110,646 to foreign countries. Vessels entered at Constantinople (1908), 14,709, of 13,261,446 tons; at all ports of the empire (1905-6), 47,265 steamers, of 44,257,892 tons, and 129,796 sailing vessels, of 2,293,977. The mercantile marine included (1909) 110 steamers, of 69,440 tons, and 936 sailing vessels, of 202,609.

**COMMUNICATIONS.** Total railway lines open to traffic (1909) in the empire, 4075 miles, detailed as follows (the lines marked with an asterisk having a kilometer guarantee from the government): Turkey in Europe 1239 (Salonika-Monastir,\* 136; Constantinople-Salonika,\* 317; Oriental Railways, 786); Turkey in Asia, 2836 (Haidar Pasha-Angora,\* 358; Eshki Shekir-Konia,\* 283; Mudania-Brusa, 25; Smyrna-Cassaba,\* 165; Alasheir-Aflon-Karahissar, 156; Smyrna-Aidin, 320; Konia-Eregli-Persian Gulf,\* 125; Mersina-Adana, 42; Beirut-Damascus, 96; Rayak-Aleppo,\* 295; Damascus-Medina, 812; Jaffa-Jerusalem, 54; Haifa-Dersaa, 105). Guarantees paid in 1909, £T798,610. Projects for over 6000 miles of new lines and extensions are under consideration. Telegraph lines (1906), 28,890 miles; wires, 49,200; offices, 1017; post-offices (Turkish), 1312 (foreign post-offices are maintained in the larger coast towns).

**FINANCE.** The unit of value is the piastre (worth about 4.4 cents); 100 piastres equal one pound Turkish. The first official budget, published for the fiscal year 1910, showed estimated revenue, £T25,079,062; expenditure, £T30,539,545. For the fiscal year 1911 the estimates were placed at £T26,015,101 and £T32,997,772. The details below are in thousands of pounds Turkish:

Revenue	Expenditure
Direct taxes:	
Land..... 2,599	Finance and debt.. 11,543
Professions..... 409	War, etc..... 9,500
Exemption..... 1,290	Pub. security..... 1,757
Prestation..... 554	Marine..... 1,640
Tithes..... 6,747	Interior, etc..... 1,370
Live stock..... 1,804	Commerce etc..... 1,161
Mines, etc..... 175	Instruction..... 946
Licenses..... 58	Posts and Tels..... 790
Indirect taxes:	Justice, etc..... 764
Customs..... 4,218	Hedjaz Ry..... 616
Other..... 608	Sheik-ul Ilamat..... 499
Monopolies..... 3,341	Civil list..... 494
Gov. enterprises..... 403	Indirect taxes..... 478
Domains..... 513	Agriculture, etc..... 396
Tribute..... 894	For. Affairs..... 259
Stamps..... 1,113	Legislative..... 217
Various..... 1,289	Various..... 568
Total..... 26,015	Total..... 32,998

The total debt stood, March 14, 1910, at £T120,733,242. A loan of £T7,000,000 was raised in 1909. Other debts not loans are the Russian

war indemnity—£T24,513,000 in 1898, on which a payment of £T350,000 falls due annually on January 14; and £T273,494 for the Damascus (Hedjaz) Railway. Russia relinquished, in 1909, 40 out of 74 annuities.

The Imperial Ottoman Bank (capitalized at £T10,000,000) had, December 31, 1908, cash £T3,621,093, and notes in circulation, £T840,041. According to the French economist, Leroy-Beaulieu, four-fifths of the bank values in Turkey belong to the French (largely in the Ottoman Bank and the Bank of Salonika). France also holds over 55 per cent. of the public debt, Germany 30, Great Britain 5. The Ottoman National Bank is largely under British influence; and a Russian bank was opened at Constantinople in 1909.

**NAVY.** The reconstruction plan is still scarcely more than a plan; a number of ships have, however, been purchased from Germany: 2 battle-ships (launched 1891), for which £T990,000 was paid; and four new destroyers (S165 to S168), costing £T400,000. On account of ill-health, Rear-Admiral Sir Douglas Austin Gamble resigned in January, 1910, his post as naval adviser (British) to the Turkish government, and Rear-Admiral Hugh P. Williams was appointed to succeed him. He is assisted by six junior British officers in his task of reorganizing the navy. Besides the Makhussa Fleet of about 75 steamers of various kinds used by the government and available as transports, store-ships, and coast-guard cruisers, the effective fleet in 1910 included 42 warships, of 56,784 aggregate tons, detailed as follows: 4 battle-ships, aggregating 33,930 tons; 4 armored corvettes (10,406); 2 protected cruisers (7050); one torpedo vessel (900); 2 torpedo dispatch boats (1400); 5 torpedo-boat destroyers (890); 18 torpedo boats (1612); 6 submarines (596). Under construction (1910), 19 vessels, of 28,243 aggregate tons, as follows: 2 armored cruisers (14,273); 2 first-class (8100) and second-class (3200) protected cruisers; 2 torpedo vessels (1550); 11 torpedo boats (1120). Personnel, 31,000 officers and men and 9000 marines.

**GOVERNMENT.** Under the constitution of 1908, the sultan, who is the protector of the Moslem faith, appoints and dismisses ministers, concludes treaties with foreign powers, declares war, is head of the military and naval forces, and can dissolve the chamber of deputies, but a new election must follow within six months. The legislative body consists of a senate and a chamber of deputies, and meets annually. The reigning sultan, Mohammed V, was born November 3, 1844; succeeded April 27, 1909. Heir-presumptive, Youssef Izzedin Effendi, born October 9, 1857 (cousin). The ministry (1910) was as follows: Premier (Grand Vizier), Ibrahim Hakki Pasha; Sheikh-ul-Islam (head of the church), Moussa Kiasim Effendi; Foreign Affairs, Rifaat Pasha; Interior, Talaat Bey; President of the Council of State, and Minister of Justice and Worship, Nedjmeddine Bey; War, Mohammed Shevket Pasha; Marine, Mohammed Moukhtar Bey; Finance, Djavid Bey; Pious Foundations (Evkafs), Sherif Ali Haider Bey; Instruction, Emroullah Effendi; Agriculture, Mines, and Forests, Mavrocordato Effendi; Commerce and Public works, Halladjian Effendi; Secretary of State of the grand-vizierate, Adil Bey.

**ARMY.** An Imperial Irade adopted during the year sanctions the control by the Minister of

War of the reorganization of the light cavalry called the Hamidich. The object of this reorganization is to utilize the valuable military reserve supplied by the tribes of Kurds. There were to be formed 65 regiments of light cavalry from these tribes, so far as possible, each regiment from men of the same tribe. They comprised from 4 to 6 squadrons, each squadron divided into 4 platoons of from 32 to 48 men. Each regiment was to be commanded by a lieutenant colonel of the active army assisted by a chief of the tribe as major. If a regiment is formed from two tribes there will be for each a native major. In the same way the squadrons were to be commanded by captains from the active army assisted by a lieutenant of the active army and 3 native subalterns. A certain number of regiments will be grouped to form a district, at the head of which will be a colonel or brigadier general assisted by three officers of different rank. The time of service is to be 27 years, from 18 to 45 years of age. The first three years comprise the preparatory period; the twelve following the active period and the twelve last the period of relief. During these 27 years the troops of the tribes will be assigned to all the regiments in accordance with the rules of the regular army.

By imperial decree the organization of the army increased the number of corps to 14 and the number of independent divisions to 5. There were to be formed seven different groups. The first consisting of a corps of three divisions was to have its headquarters at Constantinople; second, three army corps with headquarters at Adrianople, Kirk-Kilisse, and Rodosto; third, three army corps of three divisions with headquarters at Salonika, Uskub and Monastir; fourth, three army corps of which one is divided into three divisions and two into two divisions with headquarters at Erzizian, Erzerum, and Van respectively; fifth group, one army corps of three divisions with headquarters at Damascus; sixth group, two army corps of two divisions each with headquarters at Bagdad and Mosul; seventh group, an army corps of two divisions with headquarters at Sana. Finally there are a mixed independent division at Mecca and a division at Tripoli. There are in all in the army 42 divisions. These divisions are not all to be constituted in the same way as regards their infantry. Those of the first type include three regiments of three battalions each, in addition to a skeleton battalion and a battalion of nichandji or tirailleurs, that is 10 battalions in peace and 13 in time of war. Those of the second type will be formed from 7 active battalions in time of peace and 10 in war time. This reorganization was designed to lend itself to a progressive increase in the army. Artillery was reorganized into 4 gun batteries of which were 139½ in place of 93. The Minister of War decided to form a special corps of volunteers who had completed their term of military service as frontier guards, 22 companies in number called Hondoudi. Each company will have an active strength of 200 men with 4 officers, located as follows: 7 on the Bulgarian frontier, 5 on the Servian, 2 on the Austrian, 3 on the Montenegrin, and 5 on the Greek; 10 Sowars or mounted men will be attached to each company. This step will release a large number of isolated commands of the regular army.

The total budget of national defense in 1910-11 amounted to £T9,500,000, as compared with

£10,440,000 in 1909. The credits voted follow:  
 For the Minister of War .....£6,971,012  
 Grand Master of Artillery .. 300,159  
 Minister of Marine ..... 842,380  
 Gendarmerie .....1,427,004

The war strength of the Turkish army is well over 1,000,000. The Nizam or regular troops amount to about 260,000 in the first line with a reserve known as the Redif or Landwehr with its two classes and the Mustahfiz which go to swell the fighting force (though concentration of the army would be difficult.

### HISTORY

**THE NEW MINISTRY.** The new cabinet was announced on January 12, under Hakkı Pasha, Grand Vizier, who in a speech on January 24, proclaimed the government programme. The Chamber voted confidence by 187 to 34. As to martial law, the Grand Vizier said that although exceptional measures were still necessary to prevent disorder, the policy of the Ministry was to restore the normal state of affairs by wise measures. As to the reorganization of the departments, he declared that the principle of the separation of powers had been disregarded and that the Chamber had absorbed functions that were outside its sphere. The Cabinet would thenceforth assume the responsibility which belonged to the executive. The programme contained in addition promises of legislation as to landed property and as to the granting of concessions. In respect to Crete, the government declared its willingness to grant the widest measure of autonomy consistent with the maintenance of Turkish sovereignty.

**THE ALBANIAN UPRISING.** On April 3, on the occasion of a meeting to protest against the octroi, a collision took place between the Turks and Albanians in the Prishtina District, and on the following day a large body of Albanians marched upon Prishtina and encountered a force of Turkish troops at the Lyab River, where an indecisive engagement took place, lasting for about 48 hours. The Ottoman government determined on prompt and decisive measures and soon dispatched reinforcements to the scene. Albanian reforms had been under consideration for some time at Constantinople. The policy of the government in Albania included the collection of arrears of taxation, capture of outlaws, seizure of government rifles appropriated by clansmen and the registration of population. Before the end of April three Albanian forces were already in the field and the situation was very threatening, the Turks having met with reverses at several points. The Albanians gained possession of Katchanik Pass, but on April 29-30 it was recaptured after hard fighting by the Turkish troops with a loss of 142 killed and wounded. The Turkish troops under Mohammed Shevket Pasha now advanced on both sides of the Pass against the rebels. On May 16 Mohammed Shevket Pasha began the systematic disarmament of the villages in the disturbed district after a disarmament proclamation had been issued requiring the surrender of all arms within a week's time. The Turkish troops were to search the houses, but to treat the inhabitants considerately. By May 12, 35,000 Turkish troops in High Albania and eight more battalions were to be transferred from the Adrianople army corps. These and other reinforcements were expected to bring the Turkish forces

in Albania to 50,000 men. The Turks showed unusual energy in crushing the revolt. Early in June it was officially announced that the rising was at an end; but in the latter part of December it was reported that some 2000 Albanians were still under arms, and were threatening to continue their resistance unless the government complied with their demands. These included amnesty for Albanian political prisoners, educational freedom, the opening of Albanian schools closed by the government, the removal of restrictions from the press, and the right to use their national language.

**TROUBLE WITH THE DRUSES AND KURDS.** The Druses, who for ten years had been carrying matters in their own way in the region of Hauran and by their raids and feuds kept the inhabitants in a state of insecurity, started on an expedition in the summer of 1910, which resulted in the pillaging and burning of villages and the killing of some 60 persons. The marauders numbered only about 1500 and against them there was soon concentrated a large Turkish force amounting to about 16,000 men. Meetings of the Druse chiefs were held and submission was decided upon. The leader of the Druses finally surrendered in the latter part of September, but the fighting in Hauran continued in November. Occupying a strong position near Safa, they succeeded in inflicting serious losses on the Turks who, however, finally drove them out. They fled to the desert. The Kurds on the Persian frontier were also giving trouble at this time. Fifty of the Ottoman troops were killed in an engagement with them.

**THE TURKISH LOAN.** Long negotiations took place between the Turkish and French governments in the summer and autumn for the loan to Turkey of £T5,000,000. The latter government finally agreed to admit the Turkish loan to quotation on the Paris Bourse, providing two French officials should be appointed to governmental positions in the Finance Department in Turkey. This was refused by the Turkish government, and negotiations were broken off at the end of October. Contracts for the loan were finally completed with an Austro-German syndicate on November 9.

**FOREIGN RELATIONS.** Turkish foreign policy in 1910 was marked by a tendency to turn away from France and Great Britain and toward Germany and Austria. The failure to place the loan in France brought that country into disfavor, and Great Britain and Russia were unpopular through their policy in Persia (q. v.) and for other reasons. Turkey has for a long time been demanding the abolition of the Capitulations. To this Austria-Hungary is pledged but the Capitulations are regarded by the other Powers general as essential. For the difficulty over Crete see CRETE and GREECE, paragraphs on *History*. For relations with Bulgaria, see BULGARIA, *History*. In the latter part of September it was reported that an important military agreement had been reached between Turkey and Rumania to the effect that in case of any conflict between Bulgaria and Turkey, Rumania would mobilize her army corps along the Bulgarian frontier. This occasioned varied comments in the foreign press. In France fear was expressed that Germany was behind this action on the part of Rumania, Germany being anxious to regain the paramount influence at Constantinople that she had formerly exerted, and seeking to do so by means of Rumania.

**OTHER EVENTS.** The Chamber was prorogued on June 28. The boycott of Cretan goods continued to spread rapidly from Constantinople and it was announced that it would be kept up so long as the Cretan question was not settled. In July, Dr. Riza Nur, Deputy of the Chamber, who had been formerly a member of the Committee of Union and Progress, was arrested on the charge of complicity in a plot to overthrow the existing government. Others were also accused and made admissions which led to the arrests of accomplices. Dr. Riza Nur and fifty others were subjected to a preliminary examination and then summoned for trial by court-martial. The Chiragan Palace, the meeting-place of the Turkish Parliament, was destroyed by fire on January 19.

**TURKS AND CAICOS ISLANDS.** Two groups of West Indian islands, forming a dependency of the British colony of Jamaica. There are over thirty islands, only eight inhabited. Area, 169 square miles; population, 5287, of which the principal island and government seat, Grand Turk, has 1751. Salt making is the principal industry, yielding about 1,800,000 bushels annually. Imports (1909), £25,262; exports, £18,936; revenue, £7748; expenditure, £8654. Commissioner (1910), F. H. Watkins, under the direction of the governor of Jamaica.

**TURLEY, THOMAS BATTLE.** An American public official, formerly United States Senator from Tennessee, died July, 1, 1910. He was born at Memphis, Tenn., in 1845. He served throughout the war as a private in the Confederate army. He graduated from the law department of the University of Virginia in 1867 and from that time practiced law in Memphis. He was appointed United States Senator in 1897 to fill a vacancy and was later elected by the legislature to succeed the late Isham G. Harris, whose term expired in 1901.

**TURNACHON, FÉLIX.** A French journalist, caricaturist and aviator, died March 20, 1910. He was born in Lyons in 1820. He did newspaper work in that city until he was twenty-two years old. He then went to Paris where he did journalistic work. After a brief absence in Germany in 1848 he returned to Paris and founded the *Revue Comique*. He contributed also to a number of other publications. His writing was done under the pseudonym "Nadar," under which he became widely known. In 1863 he became interested in aeronautics and built an unsuccessful aerostat. During the Franco-Prussian war he was one of a company of observers who used captive balloons in the Place St. Pierre, Paris.

**TUSKEGEE NORMAL AND INDUSTRIAL INSTITUTE.** An institute for the training of colored young men and women, at Tuskegee, Ala., founded in 1880 by Booker T. Washington. The attendance for the year 1909-10 in the several departments of the institute was 1662, while the faculty numbered 167. The institute carries on, in addition to class room and technical work, what may be designated as extension work. This includes the annual negro conference with its numerous branches, the publication of a weekly farm paper, a short course in agriculture, farm demonstration work, supported by the United States government and the General Education Board, a town night school, and a town day cooking school, a county ministers' institute, ministers' night school, National Negro Business League,

and a general effort to cooperate with county officials to improve the county schools. The amount of the productive funds of the institute for the year 1909-10 was \$1,401,440. The equipment is valued at \$1,000,000. The President is Booker T. Washington.

**TWAIN, MARK.** See CLEMENS, SAMUEL LANGHORNE, and LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**TYPHOID FEVER.** The importance of the "carrier" (the person in health who spreads typhoid) having become generally recognized, many investigations were made during 1910 to find a way to detect these persons, to discover the reservoir of the bacilli, and to eradicate them from the bodies of the "carriers." Typhoid "carriers" are usually detected through an examination of their excreta, but Gaehetgens and Hamilton have shown that a presumptive infection may be inferred from an examination of the blood. Persons harboring typhoid bacilli always show a high opsonic index; that is, the blood of a "carrier" exhibits an antitoxic action toward cultures of typhoid bacilli not presented in the blood of normal individuals. The Widal reaction, too, is a help, though less certain, in the detection of "carriers." As to the favorite places of occurrence in the body, autopsies have proved that the chief lurking places were the gall bladder and the small intestine. Enormous numbers of bacilli were found in the bile in pure culture. The urinary tract also may harbor and excrete large numbers of the germs. The problem of ridding "carriers" of their infection was far from being solved. Three methods seemed to be available. Opening and draining the gall bladder is obviously feasible in only a few cases, "carriers" naturally objecting to such a serious surgical operation. Drug treatment has proved only partially successful, although Hilgermann, of Coblenz, reported that he had used sodium salicylate effectively in three cases. This drug was given, in 15 grain doses, from three to five times a day, for a week at a time, repeating such a course of treatment four or five times a year. By this means the excreta were rid of all bacilli. The method cannot be considered reliable, however, until it has been tested on a larger number of cases. A third method—that of anti-typhoid vaccination—was also tried, with reported success. Two to five per cent. of those who recover from typhoid remain "carriers" for months or years. The situation is, moreover, further complicated by the fact that individuals, who have never had an attack of typhoid fever, may become "carriers" from contact with a typhoid case. Nurses, orderlies in hospitals, etc., are liable to be infected in this way, without ever showing definite signs of the disease. Park of New York has estimated that one out of every 500 adults is a bacillus "carrier."

The practice of prophylactic vaccination against typhoid increased steadily during 1910, especially in military and naval organizations. The latest statistics available as to the value of vaccination are those of Leishman, which extended from the beginning of 1905 to June, 1908. In 5473 soldiers (in the Boer War) vaccinated against the disease, 21 took it, and 2 of these died. In 6610 soldiers, practically in the same surroundings, who were not protected by vaccination, there were 187 cases, and 28 deaths. There were, therefore, 3.8 cases per thousand among the vaccinated, as against 28.3

per thousand among the unvaccinated soldiers. In the inoculation, dead bacteria are used, from 500,000,000 to 1,000,000,000 being given at a dose. Vaccination is attended with various degrees of malaise and local tenderness at the seat of injection, fever, nausea, and vomiting, but these discomforts are evanescent and are amply compensated for by a fairly certain protection against the disease. See ENTOMOLOGY, paragraph *Typhoid Fly*.

**TYPHOID FLY.** See ENTOMOLOGY.

**TYRRELL, R. Y.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**UGANDA PROTECTORATE.** A British dependency in East Africa. Total area, 117,681 square miles. It is impossible to give accurate figures for population; a recent attempt at a native census returns 2,657,110 (males, 1,110,724) for the colored population and 507 (388 males) for the white. There are five provinces: the Eastern Province (divided into the Karamoja, Busoga, Bukedi, and Lolor districts); Rudolf Province (Turkivel, Turkana, and Dabossa); the Northern Province (Bari, Unyoro, Achole, Latuka, and Lango); the Western Province (Toro and Ankole); and Uganda Kingdom, with islands. Native capital of Uganda, Mengo; British headquarters, Entebbe. There are mission schools. There are reported under cultivation, in 1908-9, 3,475,157 acres (of which about 2,500,000 pasture). Cotton is a staple crop—about 1815 tons in 1908-9; other crops are plantains, ground nuts, sweet potatoes, cacao, rubber, chillies, and corn. Various minerals occur. Total imports (1908-9), £419,303 (of which specie and bullion, £47,027); exports, £257,028 (specie and bullion £43,973). Exports of home produce, £127,175 (cotton, ginned, £30,000, unginned, £11,299; ivory, £27,072; skins, £24,485; hides, £12,436; rubber £6366; ghee, £5356). Vessels entered, 250, of 81,498 tons. Telegraph lines, 627 miles; offices, 10; post-offices, 15. Communication is by means of steamers which ply the inland waters. Local revenue (1908-9), £102,572; grant-in-aid, £95,000. Expenditure, ordinary, £212,090; extraordinary (for public works, £34,185; Usoga famine, £10,062), £44,247. There is no debt. Reigning king of Uganda, Daudi Chua (born, 1895; succeeded, 1897, under a native council of regency). Governor and commander-in-chief (1910), Captain H. E. S. Cordeaux. In the latter part of the year there were some tribal raids to the south of Lake Rudolph, arising from quarrels between tribes of the Uganda East African frontier. Reinforcements were sent to the neighborhood.

**ULTRA-VIOLET LIGHT.** See CHEMISTRY.

**UNEMPLOYMENT.** The report of the Massachusetts Bureau of Labor showed the proportion of unemployed in 845 unions with 120,000 members to be 5.6 per cent. September 30, as compared with 7 per cent. on June 30, 7.06 per cent. on March 31, 9.36 per cent., on December 31, 1909, 4.8 per cent. on September 30, 1909 and 10.6 per cent on September, 30, 1908. About 75 per cent. of the idleness at these various dates was due to lack of work; and most of the remainder to disability, such as old age, sickness, or accident.

The *New York Labor Bulletin* showed that in about 190 unions in that State with over 95,000 members, the average idleness for the first six months of 1910 was 19.2 per cent. as com-

pared with 22.3 per cent for the first six months of 1909, 34.7 per cent. for 1908, and 14.7 per cent for 1907. The average for the same six months of 1902 to 1907 was 16.1 per cent. In 1910 those idle because of trade disputes were 3.6 per cent.; because of disability 1.4 per cent.; the condition of trade was the chief cause, although trade disputes was a more important cause than in any recent years. The proportion of idle members among reporting unions was 28 per cent in the building trades, 18.4 per cent. in transportation, 30.1 per cent. in clothing, 17.4 per cent. in tobacco, 11.6 per cent in woodworking, 7.2 per cent. in metals, and 9.2 per cent in printing.

The reports show that, while unemployment was somewhat greater than in good years, it was a great deal less than in times of real depression. Unemployment is a social disease whose intensity increases at an accelerated ratio as its amount increases. There was consequently little of that acute distress noted in the winter of 1907-8 or 1908-9.

**GREAT BRITAIN.** Reports of the Board of Trade showed the percentage of unemployment to be only about one-half that of 1909 though greater than in the busiest years. It was 6.7 per cent. January 31, 3.7 June 30, and 3.8 per cent. July 31; these last were almost one per cent. below the ten-year average, and compared with 8 per cent. July, 1907. Moreover the introduction of a comprehensive system of labor exchanges (q. v.) was calculated to relieve the worst situations.

A report of the Departmental Committee on the Employment of Children's Act of 1903 dealt exclusively with the question of street trades. The statistics showed that from 60 to 75 per cent. of the children licensed as street sellers of newspapers, matches, and shoe blacking, and for the delivery of goods were under 14 and that their earnings ranged from 25 cents to \$2.50 per week. The majority report stated that a child match-seller is likely to become a beggar and a newsboy, a gambler. It also emphasized the dangers of street trades to girls, the general unhealthfulness of such trades for both boys and girls and the fact that little of the money thus earned goes regularly to family budgets. The minority while admitting undoubted evils emphasized the difficulty of betterment. The majority favored the prohibition of street trading for boys under 17 and for girls under 18; the minority favored a very gradual change in the law. The latter pointed out that the failure to enforce the existing law is a poor basis for the demand for further legislation; and urged the consideration of the facts that the street traders come from the poorest homes, that earnings do in many cases go to family support and that abolition may lead to still more deplorable homework. Both reports agreed that the prohibition of street trading for children of school age is desirable.

**GERMANY.** As in other nations increased attention to the problem of unemployment has gone on in Germany with the growth of feeling that the individual alone is not entirely responsible for his economic and social position; that he is often the victim of unfortunate or unfavorable events over which he has no control; and that, therefore, society is largely responsible. In Germany this feeling is stronger than in either England or the United States, and has led to provision for the sick, the aged and de-

fectives. Recently public men have recognized that poverty is frequently due to inability of able and willing persons to find work; and that society will profit by preserving such persons from becoming unfit or inefficient because of enforced idleness. Munich, Dresden, Cologne, Strassburg and a score of other leading cities have adopted some form of unemployment insurance. Two general plans have been followed. By one of these the city provides an insurance fund, derived from employers, employes and the city treasury, and operated by city officials. By the other the city subsidizes trade unions which pay unemployment benefits. In the latter case the city takes care of non-union unemployed by relief work. Under the former plan insurance may be provided for a limited number of weeks during the winter or for the entire year, depending in either case on the length of time the beneficiary has made weekly payments. In Cologne such insurance is provided for the winter months, the system being of chief advantage to members of the building trades. Cooperation with trade unions is the more frequent and more satisfactory system; the unions have rendered valuable service in preventing fraud, because of their intimate relations with the workers and the conditions of work. Under both systems insurance is given only to those able and willing to work; those on strike and those discharged through obvious faults of their own are not eligible to benefit. Since 1902 an active propaganda for a system of Imperial unemployment insurance has been carried on; two official investigations have been made. The most serious obstacle is the lack of exact statistical information of the amount of employment in different industries. There is also the question whether workmen on strike should receive unemployed benefit when their strike is not justified.

In Bavaria where the agitation for a state system was strongest a government committee reported in favor of the "Ghent Scheme," by which subventions are granted by cities to existing trade unions. This proposal was supported by the trade unionists although some objected on the ground that the effect of subsidies would be to make the unions mere friendly societies, giving their greatest attention to making the best of existing conditions instead of actively fighting for better ones. Representatives of cities objected on account of the expense and because country people would move to the city to get the benefit. A system was finally adopted providing that the larger cities should set aside two separate and independent funds. One of these is to aid trade unions which already have unemployment insurance; the other is to aid other unions and unorganized labor. The state is to repay a certain proportion of the cities' outlay. Rules were drawn to prevent migration to the city.

FRANCE. The International Conference on Unemployment met at the Sorbonne in Paris, September 18-21, arrangements having been made at a preliminary meeting at Paris, July, 1909. The object of the Conference was to investigate scientifically the causes of unemployment with a view to organizing means for conserving human resources. Twenty-one nations were represented. The delegation from the United States included Commissioner of Labor Charles P. Neill, Professor E. T. Devine, Professor Henry W. Farnam, Mr. Lee K. Frankel, Professor J. J. Andrews, and Mr. W. M. Leiserson. The delegates repre-

sented the interests of labor, of employers, and of the public. The topics most extensively discussed were statistics of unemployment, unemployment insurance, and how to increase the efficiency of labor exchanges (q. v.). Detailed reports of German and Belgian experience were given. Lively discussion was aroused by the efforts of some socialist and single-tax advocates to enforce the view that proposed methods of relieving the intensity of the evils of unemployment were only makeshifts and that the problem demands the more radical treatment of change in social policy or organization. A plan for permanent organization was adopted. This involves the formation of sections in the countries interested. The American section will be organized by the American Association for Labor Legislation.

**UNION CENTRAL LIFE INSURANCE SOCIETY.** See INSURANCE.

**UNIONISTS.** See GREAT BRITAIN, *History*.

**UNITARIANS.** A religious denomination, the distinctive feature of which is the acceptance and adoption of the principles of freedom and progress in religion. The American Unitarian Association is the administrative body of the church, with headquarters in Boston. No official statistics are gathered of the membership of the denomination, but in 1910 it was approximately as follows: Communicants, 71,129; churches, 504, and ministers, 538. There are a large number of conferences, unions, alliances, and leagues, organized for the purpose of distributing Unitarian literature and propagating Unitarian thought throughout the world. In Great Britain there are some 375 ministers and 372 congregations. Divinity schools are maintained at Cambridge, Mass., Meadville, Pa., and Berkeley, Cal. Active missionary work is carried on at many points among the Icelandic, Norwegian and Swedish emigrants in the United States. Field secretaries are employed in New England, New York, Canada and on the Pacific Coast. Among the Unitarian periodicals are the *Christian Register*, published in Boston, the *Unitarian Defense*, published in New York, and the *Pacific Unitarian*, published in San Francisco. The president of the American Unitarian Association is Rev. Samuel A. Eliot, D. D., and the secretary is Rev. Lewis G. Wilson.

**UNITED PRESBYTERIAN CHURCH OF NORTH AMERICA.** A religious denomination, formed in Pittsburg, Pa., in 1858 by a union of Associate and Associate Reformed churches. According to the religious census made by the United States government in 1906 and published in 1910, there were in the denomination in 1906, 130,342 communicants with 984 churches and 994 ministers. According to statistics gathered by the denomination itself, there were in 1910, 167,885 communicants, of whom 32,680 were in the foreign missionary fields. There were 1143 ministers and 1104 churches. In the 1426 Sabbath schools there were 149,595 scholars and 14,787 officers and teachers. There were 972 Young People's Societies with a membership of 32,589. The total contributions for all purposes for the year amounted to \$2,481,652. Of this amount, \$783,781 was for salaries of ministers, \$881,868 for congregational purposes, \$554,818 for the boards of the church and \$207,150 for general purposes. The average contribution per member was \$18.09. The denomination sustains six colleges in the

United States, one at Assiut, Egypt, and one in the Punjab, India. There are theological seminaries at Allegheny, Pa., Xenia, O. The property value of these institutions is \$900,000. Missions are carried on in Egypt, India and the Sudan. There are missions also among the mountaineers of Tennessee and Kentucky, among the negroes in Virginia, Tennessee, Alabama and Mississippi, and among the American Indians in the Oregon and Idaho reservations. The leading papers of the denomination are the *United Presbyterian* and the *Christian Instructor*, and there are several other periodicals for Sabbath schools and young people issued from the Publishing House in Pittsburg, Pa. The church is a member of the World's Alliance of Presbyterian and Reformed Churches, the Council of the Reformed Churches in America and the Federation of Evangelical Churches in America. The General Assembly meets annually in May.

**UNITED STATES.** The total area belonging to or under the jurisdiction of the United States is estimated by the United States Coast and Geodetic Survey at 3,743,344 square miles, divided as follows: United States, 3,026,789; Alaska, 590,884; Philippine Islands, 115,026; Hawaiian Islands, 6449; Porto Rico, 3435; Panama Canal Zone, 474; Guam, 210; Tutuila Group, Samoa, 77.

**POPULATION.** The population of the United States according to the Thirteenth Census made in 1910, including all non-contiguous territories, with the exception of the Philippines, Guam and Tutuila, in which the census was not taken, will be found in detail in the article which follows, **UNITED STATES CENSUS**. That article gives the total population, population by States and such other information as was available at the end of the year.

**AGRICULTURE.** The statistics relating to agriculture and agricultural products will be found in the article **AGRICULTURE** and under the respective headings of the various products. The agricultural production of the separate States and the non-contiguous territories will be found under their respective headings.

**INDUSTRIES.** For a general discussion of the various industries, see the articles dealing with these industries, as **IRON AND STEEL**, **COTTON**, **SUGAR**, **RAILWAYS**, **SHIPBUILDING**, **TEXTILE MANUFACTURES**, **BOOTS AND SHOES**, etc. For matters relating to carrying on of industries, see **TRADE UNIONS**, **TAXATION**, **TRUSTS**, **STRIKES** and **LOCKOUTS**, etc.

#### FOREIGN COMMERCE

The foreign commerce of the United States in the calendar year 1910, amounted to \$3,427,415,895, compared with \$3,203,719,369 in 1909. The relative value of the imports and exports and the trade with leading countries are shown in the table on page 739. These figures show a slight increase in the exports to Europe, a marked gain in those to North and South America, an increased total to Asia and Oceania in combination, and a slight gain in the exports to Africa. To Europe the exports during the calendar year 1910 were in round numbers \$1,193,000,000, against \$1,170,000,000 in 1909; to North America, \$426,000,000 against \$345,000,000 in the preceding year; to South America, \$100,000,000 against \$83,000,000 in the preceding year; to Asia and Oceania combined, \$124,-

000,000 against \$113,000,000 in the preceding year; and to Africa, \$21,000,000 against \$17,000,000 in the preceding year.

On the import side the figures also indicate a gain for each of the grand divisions except South America. From Europe the imports were \$790,000,000, against \$767,000,000 in 1909; from North America, \$324,000,000, against \$278,000,000 in 1909; from South America, \$189,000,000, against \$193,000,000 in 1909; from Asia and Oceania, \$240,000,000, against \$223,000,000 in 1909; and from Africa, \$19,000,000, against \$18,000,000 in 1909.

One specially interesting feature of the figures is the fact that the exports to South America for the first time crossed the \$100,000,000 line, and are practically two and one-half times those of a decade ago, being, for 1910, \$100,303,616, and for 1900, \$41,248,051. To North America the exports have more than doubled in the decade, the figures for 1910 being \$425,576,553, against \$198,788,019 in 1900. To Europe the increase in exports is very slight, the figures for 1910 being \$1,192,095,728, against \$1,116,399,524 in 1900. To Asia and Oceania the growth is also comparatively small, the figures for 1910 being \$124,859,916, against \$98,531,349 in 1900.

On the import side the gain from Europe is larger, the total imports in 1910 being \$790,154,694, against \$441,610,461 in 1900. From North America the imports in 1910 aggregated \$324,212,684, against \$130,361,453 in 1900; from South America \$189,466,428, against \$102,706,633; and from Asia and Oceania combined, \$239,732,090, against \$143,445,861 in 1900.

The table at the top of page 739 shows the trade with the principal countries during the calendar year, 1910, compared with 1909.

As will be seen from the table on pages 739-740, the foreign commerce of the United States in the fiscal year amounted to \$3,302,804,708, of which imports were \$1,557,819,988; exports, \$1,744,984,720; excess of exports over imports, \$187,164,732. The imports were larger than in any preceding year, and the exports larger than in any former years except 1907 and 1908. The grand total of foreign commerce, including in this term all merchandise imported and exported except that included in the trade with the noncontiguous territories of the United States (Porto Rico, Hawaii, Guam, Tutuila, and Alaska) amounted to \$3,302,821,057 and is greater than that of any preceding year except 1907, when the total was \$3,315,272,503.

The excess of exports over imports in the fiscal year, 1910, is smaller than in any other year since 1896, being \$187,111,349, against \$351,090,880 in the fiscal year 1909, \$666,431,554 in 1908, \$446,429,653 in 1907, \$517,302,054 in 1906, and \$401,048,595 in 1905. This marked reduction in the excess of exports over imports is due to a falling off in the exportation of foodstuffs and an increase in the importation of manufacturers' materials.

The increasing share of the manufacturers of the country in its foreign trade is illustrated by the detailed statement regarding the imports and exports by great groups during the fiscal year 1910. These figures show increased importations of manufacturers' materials, increased exportations of manufactures, and a decline in both imports and exports of foodstuffs. The value of imported manufacturers' materials, including in this term both crude and partly manufactured, amounted to \$856,000,000 in the

TABLE OF COMMERCE FOR CALENDAR YEARS 1909 AND 1910.

Countries	Imports		Exports	
	1909	1910	1909	1910
	Dollars	Dollars	Dollars	Dollars
Argentina .....	27,080,231	32,050,322	36,287,992	42,776,982
Australia .....	14,305,201	13,953,627	25,501,199	31,510,496
Belgium .....	36,236,568	37,559,056	44,477,380	38,910,722
Brazil .....	117,062,725	103,716,231	19,765,836	24,988,337
Canada .....	87,310,881	103,256,955	187,729,383	241,809,233
Chinese Empire .....	29,066,113	33,109,472	19,574,013	15,832,092
Cuba .....	107,334,716	127,827,395	48,217,689	57,783,617
France .....	131,982,748	121,810,225	126,381,959	115,709,548
Germany .....	161,951,687	166,536,719	247,310,484	258,307,490
India, British .....	46,338,163	43,428,214	7,968,848	7,638,981
Italy .....	50,208,431	49,296,827	56,850,502	52,697,405
Japan .....	68,116,656	73,763,695	23,471,837	26,566,178
Mexico .....	52,578,454	61,092,502	53,513,347	63,858,939
Netherlands .....	30,905,712	30,682,712	89,121,124	84,867,181
Russia .....	16,237,010	13,828,265	16,677,788	19,533,761
United Kingdom .....	247,465,112	270,889,409	521,281,999	550,626,404
Grand Divisions.				
Europe .....	763,617,523	790,154,694	1,169,672,726	1,192,695,728
North America .....	277,862,210	324,212,684	344,761,296	425,576,553
South America .....	193,202,131	189,466,428	83,509,838	100,303,616
Asia and Oceania .....	223,250,726	239,732,090	113,130,487	124,859,916
Africa .....	17,588,134	19,358,355	17,124,298	21,055,831
Total .....	1,475,520,724	1,562,924,251	1,728,198,645	1,864,491,644

fiscal year, against \$673,000,000 in 1909. The exports of manufactures, including both those ready for consumption and those for further use in manufacturing, aggregated \$768,000,000 in the fiscal year 1910, against \$671,000,000 in 1909. Thus imports of manufacturers' materials in 1910 were larger than ever before and were 109 per cent. greater than a decade ago and 198 per cent. greater than two decades ago. Manufactures exported in 1910 show also a larger total than ever before and were 58 per cent. greater than in 1900 and 329 per cent. greater than in 1890.

The falling off in the exports of foodstuffs, due to larger home consumption, is again illus-

trated in the figures of 1910, which show the total value of foodstuffs exported as but \$369,000,000, against \$438,000,000 in 1909 and \$545,000,000 in 1900, a decline of 32 per cent. in 1910 when compared with 1900, despite the fact that prices and therefore export valuations were in 1910 higher than those of 1900. Measured by quantities the wheat exports of 1910 were 46,666,000 bushels, against 102,000,000 in 1900; flour, 9,000,000 barrels against 18,666,000 in 1900; and corn, 36,800,000 bushels, against 209,000,000 in 1900.

The tables on page 741 give the chief articles of import and export, with their values in the fiscal years 1909 and 1910.

TABLE OF COMMERCE FOR FISCAL YEARS 1908, 1909, 1910

Countries	Imports		Exports	
	1908	1909	1908	1910
Europe				
Austria-Hungary ...	\$15,425,659	\$15,436,587	\$17,408,910	\$16,174,738
Belgium .....	19,895,677	27,393,918	52,940,514	45,093,003
Denmark .....	1,272,938	1,625,408	21,541,696	17,522,113
France .....	101,999,541	108,387,337	116,123,468	108,764,262
Germany .....	142,935,547	143,525,828	276,922,089	235,324,140
Greece .....	3,019,666	2,382,202	1,290,804	1,237,297
Italy .....	44,844,174	49,287,894	54,217,394	58,509,595
Netherlands .....	20,305,864	26,086,336	102,206,184	95,012,366
Norway .....	3,668,909	4,643,609	6,841,626	5,806,113
Portugal .....	4,967,922	6,240,562	3,086,072	3,901,405
Russia in Europe ...	11,113,421	11,051,571	16,196,154	16,342,377
Spain .....	14,152,712	14,077,064	21,906,379	19,679,003
Sweden .....	4,633,672	4,486,142	9,671,810	6,731,304
Switzerland .....	24,698,036	23,831,492	646,840	750,736
Turkey in Europe ...	4,554,509	6,393,468	1,418,024	1,896,249
United Kingdom ...	190,355,475	208,612,758	580,663,522	514,627,365
Total Europe .....	608,014,147	654,322,918	1,283,600,155	1,146,755,321
North America				
Bermuda .....	455,546	477,705	957,066	1,163,626
British Honduras ...	737,389	848,925	1,066,409	1,081,898
Canada .....	75,131,666	79,317,055	167,035,947	163,448,656
Newfoundland and Labrador .....	1,169,060	1,162,211	3,587,748	3,939,643
Total North America .....	76,353,640	80,765,891	170,667,229	166,633,223
Central Am. States:				
Costa Rica .....	4,405,165	2,695,858	2,696,744	2,307,096
Guatemala .....	2,390,167	3,148,489	1,832,324	1,706,156
Honduras .....	2,268,070	2,150,752	2,012,225	1,499,632
Nicaragua .....	1,160,832	1,004,811	1,321,767	1,355,287
Panama .....	1,469,344	1,676,994	2,229,189	16,797,530
Salvador .....	981,715	970,137	1,176,393	1,462,135
Total Central Am. States .....	12,675,293	11,647,041	12,213,196	25,127,836
Mexico .....	46,945,690	47,712,214	58,795,943	58,193,704

	Imports			Exports		
	1908	1909	1910	1908	1909	1910
West Indies:						
British .....	12,129,350	11,410,019	11,154,683	12,475,383	11,715,654	11,277,963
Cuba .....	83,284,692	96,722,193	122,528,037	47,161,306	48,913,366	52,858,758
Danish .....	592,292	221,467	403,926	727,193	693,681	749,174
Dutch .....	361,966	249,823	346,589	706,210	635,827	658,146
French .....	60,111	49,899	43,222	1,455,701	1,411,204	1,318,224
Haiti .....	689,045	525,947	790,519	3,649,172	3,937,859	4,498,449
Santo Domingo ...	4,583,661	3,653,880	2,462,716	2,703,276	2,579,320	3,106,402
<b>Total N. America</b>	<b>228,815,898</b>	<b>253,999,920</b>	<b>306,767,486</b>	<b>324,674,719</b>	<b>309,475,694</b>	<b>385,520,069</b>
South America						
Argentina .....	11,024,098	22,230,182	33,463,264	31,858,155	33,712,505	40,694,941
Bolivia .....	384	138	189	1,226,238	792,691	603,721
Brazil .....	74,577,864	98,053,229	108,154,491	19,490,077	17,527,692	22,897,890
Chile .....	14,777,811	13,712,373	20,921,326	9,194,850	5,466,286	8,304,246
Colombia .....	6,380,055	7,010,304	7,485,141	3,452,375	3,679,070	3,979,886
Ecuador .....	2,401,188	2,730,372	2,859,714	1,909,126	1,849,657	2,215,951
Guiana:						
British .....	230,828	791,349	567,793	1,988,385	2,009,988	1,884,331
Dutch .....	780,869	865,743	925,782	645,417	612,087	655,889
French .....	33,136	39,728	21,171	334,174	371,615	300,213
Paraguay .....	14,645	16,777	29,170	100,568	52,268	61,142
Peru .....	6,670,816	6,386,544	7,621,497	6,959,579	4,557,864	4,548,063
Uruguay .....	1,364,796	3,726,877	7,413,896	3,868,661	3,360,313	4,272,145
Venezuela .....	6,725,184	8,313,609	6,701,352	2,555,863	2,568,211	2,797,210
<b>Total S. America</b>	<b>124,998,590</b>	<b>163,878,724</b>	<b>196,164,786</b>	<b>83,583,874</b>	<b>76,561,680</b>	<b>93,246,830</b>
Asia						
Aden .....	1,615,261	1,768,945	2,068,220	1,097,277	1,446,670	536,784
Chinese Empire....	26,599,820	29,442,723	31,297,928	31,020,925	19,948,933	16,970,453
East Indies:						
British India .....	44,465,398	48,547,347	45,320,268	9,238,202	8,372,137	7,581,232
Straits Settlements	13,185,276	15,719,858	18,654,702	2,439,239	1,590,431	1,709,045
Other British .....	3,838,613	4,640,691	6,778,648	209,417	293,062	304,738
Dutch .....	14,095,864	22,967,601	10,651,985	2,181,952	2,622,998	2,241,225
Hongkong .....	2,129,256	1,769,019	2,238,231	8,975,161	7,367,802	6,467,165
Japan .....	68,107,545	70,392,722	66,398,761	41,432,327	26,691,613	21,969,310
Korea .....	3,045	2,879	20,176	1,563,113	320,780	442,066
Persia .....	529,462	345,250	683,771	3,885	1,150	509,173
Russian Asia .....	341,627	793,345	1,181,058	2,072,915	1,685,734	1,039,881
Siam .....	51,858	121,988	125,882	392,663	364,029	286,220
Turkey in Asia .....	6,306,061	6,035,660	8,514,132	555,376	621,893	744,504
<b>Total Asia</b> .....	<b>181,167,616</b>	<b>197,548,027</b>	<b>194,026,802</b>	<b>101,784,832</b>	<b>71,792,187</b>	<b>60,861,813</b>
Oceania						
British Oceania:						
Australia and Tas-						
mania .....	11,186,668	13,975,210	14,806,764	28,280,661	24,077,260	27,696,557
New Zealand .....	3,040,168	2,847,655	4,168,125	6,509,882	5,468,547	5,577,088
All other .....	66,208	107,216	165,321	141,730	130,566	122,987
French Oceania .....	543,193	669,036	603,418	346,504	397,740	544,436
German Oceania .....	54,406	30,896	38,270	56,212	122,234	116,374
Philippine Islands...	10,164,223	9,433,986	17,317,897	11,461,732	11,189,441	16,832,645
<b>Total Oceania</b> ....	<b>25,054,866</b>	<b>27,062,008</b>	<b>37,099,795</b>	<b>46,789,201</b>	<b>41,890,788</b>	<b>50,890,087</b>
Africa						
British Africa:						
West .....	91,271	196,185	227,108	2,085,046	1,997,245	2,241,448
South .....	1,760,350	1,689,570	2,178,174	7,847,045	7,298,954	9,614,406
East .....	655,524	856,613	803,612	354,637	515,441	601,133
French Africa .....	498,045	549,513	736,970	1,545,145	1,609,083	1,275,393
German Africa .....	.....	208,303	433,093	120,064	160,149	200,465
Morocco .....	262,396	192,017	475,205	8,468	62,101	60,373
Portuguese Africa...	67,935	106,061	239,996	5,463,949	3,661,167	3,122,775
Spanish Africa .....	.....	.....	.....	9,129	22,897	14,934
Egypt .....	12,863,051	11,200,841	12,176,108	2,128,383	1,293,807	983,845
<b>Total Africa</b> .....	<b>16,290,675</b>	<b>15,108,627</b>	<b>17,489,739</b>	<b>20,840,565</b>	<b>17,035,434</b>	<b>.....</b>
<b>Grand total</b> .....	<b>\$1,194,341,792</b>	<b>\$1,311,920,224</b>	<b>\$1,557,819,988</b>	<b>\$1,860,773,846</b>	<b>\$1,663,011,104</b>	<b>\$1,744,984,720</b>

**TRADE WITH NONCONTIGUOUS TERRITORIES.** Trade of the United States with its noncontiguous territories aggregated two hundred million dollars in the calendar year 1910 against one hundred million in the calendar year 1903, the first year for which complete statistics of this trade are available. The figures of the Bureau of Statistics, Department of Commerce and Labor, just completed, show the total value of this trade in the year ending December 31, 1910, to be \$202,494,343, and in the year ending December 31, 1903, \$100,107,234, an increase of 100 per cent, while the trade with other parts of the world was increasing about 40 per cent. The territories in question are Alaska, Hawaii,

Porto Rico, the Philippines, Guam, Tutuila and the Midway Islands.

The value of the merchandise shipped from the territories in question to the United States in 1910 was \$111,731,031, against \$61,876,756 in 1903. The value of the merchandise shipped from the United States to the noncontiguous territories was \$90,763,312, against \$38,230,478 in 1903. The increase in the period from 1903 to 1910 was thus 82 per cent. in the value of merchandise shipped from the territories in question to the United States; and 139 per cent. in the value of merchandise shipped from the United States to those territories.

CHIEF ARTICLES OF IMPORT AND EXPORT WITH  
THEIR VALUES IN THE FISCAL YEARS  
1909 AND 1910:

Articles	Imports	
	1909	1910
Art works.....	\$ 3,797,163	\$21,008,720
Automobiles .....	2,905,391	2,851,446
Chemicals, drugs and dyes...	78,379,634	90,964,241
Coal and coke.....	3,498,460	4,460,919
Copper and manufactures of...	29,378,598	30,938,365
Coffee .....	79,112,129	69,194,353
Cotton, manufactures of....	62,010,286	66,473,143
Earthen, stone and china ware .....	9,809,028	11,021,126
Fibres:		
Manufactures of .....	49,312,392	57,624,245
Unmanufactured .....	29,769,974	32,418,839
Fish .....	12,403,013	13,836,968
Fruits, including nuts.....	31,110,683	37,423,827
Furs, and manufactures of...	9,432,993	11,008,386
Hides and skins, other than fur skins .....	78,489,838	112,247,836
India rubber and gutta-percha crude .....	61,709,723	101,078,825
Iron and steel, and manufactures of .....	22,439,787	38,502,457
Precious stones .....	29,373,040	47,799,801
Leather, and manufactures of...	13,928,134	16,865,937
Oils .....	20,403,512	24,299,569
Silk:		
Manufactures of .....	30,718,582	32,888,459
Unmanufactured .....	79,903,586	67,115,177
Spirits, wines and malt liquors .....	23,168,845	23,304,183
Sugar .....	96,564,998	106,349,005
Tea .....	18,562,676	13,671,946
Tin, in bars, blocks or pigs...	26,007,216	30,869,532
Tobacco, unmanufactured .....	25,400,919	27,751,279
Wood, and manufactures of...	43,690,417	54,422,504
Wool:		
Manufactures of .....	18,102,460	23,532,175
Unmanufactured .....	45,171,994	51,220,844

Articles	Exports	
	1909	1910
Agricultural implements .....	\$25,694,184	\$28,124,033
Animals .....	22,645,438	17,447,735
Breadstuffs .....	159,989,221	133,191,330
Cars, carriages and other vehicles .....	15,392,817	20,630,859
Chemicals, drugs, dyes and medicines .....	19,131,311	21,415,935
Coal .....	37,316,795	40,512,546
Copper, manufactures of....	85,290,186	88,004,397
Cotton:		
Manufactures of .....	31,878,566	33,397,097
Unmanufactured .....	417,390,665	450,447,243
Fertilizers .....	9,283,416	8,700,640
Fish .....	6,113,052	8,652,088
Fruits, including nuts.....	16,568,080	18,885,654
Iron and steel, and manufactures of, not including ore .....	144,951,357	179,133,186
Leather, and manufactures of...	39,413,637	52,646,765
Mineral oils .....	105,999,687	99,090,212
Meat and dairy products....	166,521,449	130,632,783
Naval stores .....	15,101,300	15,681,962
Oil cake and oil cake meal...	25,836,134	19,251,012
Paper, and manufactures of...	7,663,139	16,083,271
Paraffin and paraffin wax....	6,445,917	7,886,359
Seeds .....	5,256,623	3,485,418
Tobacco:		
Manufactures of .....	4,701,617	4,803,101
Unmanufactured .....	30,902,900	38,115,386
Vegetable oils .....	23,098,050	16,479,301
Wood, and manufactures of...	67,867,932	78,813,803

\* Includes linters. † Not including corn oil cake.

The figures for the trade of the United States with its non-contiguous territories do not include movements of gold and silver. The value of domestic gold shipped from Alaska to the United States in 1910 was in round terms \$15,000,000, and of foreign gold (presumably from British territory adjacent to Alaska) approximately \$3,500,000; while the value of domestic gold shipped from Hawaii to the United States in 1910 was about \$500,000.

The principal articles forming this trade of more than \$200,000,000 between the United States and its noncontiguous territories are in general terms tropical products sent from those islands to the United States, and fish, copper, and furs from Alaska, while of shipments from the United States to these territories manufactures and foodstuffs are the principal articles. Sugar and hemp are the principal articles coming from the Philippines, and, as already indicated, fish, copper, and furs are the principal articles coming from Alaska. The quantity of sugar sent from Hawaii to the United States in the calendar year 1910 was a little over 1,000,000 pounds, valued at \$39,500,000; from Porto Rico 626,000,000 pounds, valued at \$26,000,000; and from the Philippines 218,000,000 pounds, valued at \$6,500,000. Tobacco is also an article of some importance in the shipments of merchandise from the tropical islands to the United States, amounting to \$1,500,000 of unmanufactured tobacco and a little less than \$5,000,000 in value of cigars from Porto Rico; a little less than \$2,000,000 worth of cigars, cigarettes and cheroots from the Philippines, and about \$9000 worth of tobacco from Hawaiian Islands. Manilla hemp from the Philippines in 1910 amounted to about \$8,666,000 in value. Fruits and nuts (chiefly fruits) from Hawaii amounted to \$2,500,000 in value; from Porto Rico a little less than \$2,000,000; and from the Philippines the shipments under this general head (chiefly cocoanut meat, broken, or "copra") amounted to a little over \$500,000.

IMPORTS AND CUSTOMS RECEIPTS DURING FIRST YEAR UNDER THE NEW TARIFF. The record of the first full year under the new tariff law, so far as relates to total importations and customs collections, is given in a special statement compiled by the Bureau of Statistics of the Department of Commerce and Labor. The figures cover the imports of the 12 months, August 1, 1909, to July 31, 1910, and thus include five days under the Dingley tariff, since the present law went into effect on the morning of August 6th. The statement shows total imports during the 12 months in question, \$1,562,621,181, of which \$768,047,231, or 49.15 per cent, entered free of duty. The importations during the year were larger than in any corresponding period in the history of the import trade and the value of those entering free of duty, the largest ever shown in any corresponding year, while the percentage which free merchandise formed of the total imports was larger than in any corresponding year except 1897, the last year of the Wilson tariff, when large quantities of merchandise then on the free list were being imported in anticipation of a change in the tariff law; the years 1892, 1893, and 1894, under the McKinley tariff, when sugar was admitted free of duty; and the year ending September 30, 1841.

The customs receipts during the 12 months, August 1, 1909, to July 31, 1910, were \$327,873,672, a larger total than in any corresponding year except 1907, when the total was \$335,889,830. A comparison of the imports and customs receipts during the period in question shows an average ad valorem rate of duty on all imports of 20.98 per cent. and on dutiable imports, of 41.26 per cent. The average ad valorem rate on all imports is lower than in any corresponding period during the last 20 years except the second year of the Wilson tariff, when the average was

20.77 per cent. and the closing year of the McKinley tariff, when the average was 19.11 per cent. The average ad valorem rate on dutiable imports is lower than in any corresponding period of the last 20 years, except 1896, when the average was 39.48 per cent., and 1895, when the average was 41.18 per cent., both these years being under the Wilson law.

A comparison of the record of the Payne law, during the entire period of its operation for which figures are available, with that of the McKinley, Dingley, and Wilson laws, respectively, shows the per cent. of the total imports free of duty, as follows: under the Payne law, 49.15; under the Dingley law, 44.31; under the Wilson law, 48.82; and under the McKinley law, 53.04. The monthly average of customs receipts under the respective tariffs were: Payne law, \$27,322,806; Dingley law, \$21,676,085; Wilson law, \$13,857,938; and McKinley law, \$14,571,240. The average ad valorem rate of duty on total imports was, under the Payne law, 20.98 per cent.; Dingley law, 25.48 per cent.; Wilson law, 21.92 per cent.; and McKinley law, 22.12 per cent. Average ad valorem rate on dutiable imports, under the Payne law, 41.26 per cent.; Dingley law, 45.76 per cent.; Wilson law, 42.82 per cent.; and under the McKinley law, 47.10 per cent.

#### INTERNAL COMMERCE

**LIVESTOCK AND GRAIN MOVEMENTS.** Commercial movements of livestock during 1910, as measured by the receipts of livestock at seven primary interior markets, were characterized by a shortage in the commercial supply of hogs. The total annual receipts of these animals, 15,685,435 head, being the lowest for any year since 1896 and falling 20 per cent. short of the average of the preceding five-year period. The receipts of cattle at these markets, 9,265,412 head, was slightly larger than during 1909, though below the average for the preceding five-year period. The receipts of sheep, 12,406,767 head, showed a record total, being about 20 per cent. in excess of the average for the preceding five years. The receipts of horses and mules, 368,252 in number, though larger than for the preceding two years, showed a diminution as compared with the figures for the earlier years.

The number of loaded livestock cars received at the seven markets during 1910 was 690,423 as compared with 708,210 cars in 1909 and 740,257 cars in 1908. The total receipts of cattle during 1910 was slightly in excess of those reported in 1909. Kansas City, St. Louis and St. Joseph showed smaller totals than for the preceding year. Receipts of meat animals at the four leading Atlantic seaport cities amounted to 8,240,317 head as compared with 9,220,901 and 9,865,980, in 1909 and 1908 respectively. Shipment of packing-house products from Chicago in 1910 totaled 1,998,246,875 pounds, a decrease of 20 per cent. compared with the average for the preceding five-year period.

The grain receipts for the calendar year at fifteen leading primary markets totaled 814,167,454 bushels, a total in excess of those reported in the two years previous. The aggregate was made up of 264,588,917 bushels of wheat; 243,098,001 bushels of corn; 218,141,254 bushels of oats; 80,916,056 bushels of barley; and 7,423,226 bushels of rye. As compared with 1909 all

classes of grain showed a gain except rye. Flour shipments at twelve leading milling centres, 41,938,888 barrels, fell below those reported in 1909.

**LUMBER MOVEMENTS.** The more important lumber movements during 1910 as reported to the Bureau of Statistics, Department of Commerce and Labor, indicate a more or less stationary condition of the trade caused in part by a similar condition of the building trades, especially in the larger cities of the East. Coastwise receipts for the year of Southern pine at New York City were 459,535,000 feet. This was below the receipts for 1909 which were 486,661,000 feet. Rail shipments reported by the Northern Pine Manufacturers' Association from the territory in the Mississippi and Wisconsin valleys were 1,186,040,000 feet, which differs but slightly from the total quantity reported during 1908-9. Since 1906 there has been a decrease in the rail shipments of about 35 per cent. Shipments of Southern pine were slightly larger than in 1909.

**COAL MOVEMENTS** The anthracite coal shipments from Eastern producing territory in 1910 amounting to 64,905,762 long tons, exceeded those of the two years previous. This total was exceeded only once, in 1907, the year following the great anthracite strike. About one-fourth of the total shipped was handled in and around New York for shipment to New York proper and other Atlantic ports.

The bituminous movement in the East as reported by nine leading coal-carrying roads was 121,460,415 short tons, or 15 per cent. in excess of the 1909 total. The coastwise shipment of soft coal from the five principal Atlantic ports amounted to 26,121,224 long tons, an increase of about 2,000,000 long tons over 1909 and exceeding the shipment even of 1907. For further information regarding the production of coal and coke see these articles.

**LAKE COMMERCE.** The volume of lake commerce as measured by the quantity of merchandise shipped between domestic Lake ports attained during 1910 a record total of 86,732,316 short tons, compared with 80,974,605 short tons in 1909 and 83,506,991 short tons in 1907, the largest previous annual total recorded by the Bureau of Statistics. Of the total domestic lake shipments, 41,517,641 long tons, or 54 per cent., were made up of iron ore of which the greater number is to be credited to Lake Superior ports. The Lake shipments of soft coal during 1910 amounted to 18,406,469 short tons, an increase of 35 per cent. over the corresponding figures of 1909. Lumber shipments by Lake were 1,207,792,000 feet, a small increase over the total for 1909. Grain and flaxseed shipments were 117,275,310 bushels, as compared with 128,087,192 bushels in 1909.

The vessel movement of 1910 in the domestic Lake trade as measured by the outward bound vessel tonnage established a new record of 110,292,481 net tons register, compared with 103,271,885 net tons for 1909. The total number of departures, 75,941 was larger than in the three previous years. The average size of Lake vessels engaged in domestic trade was 1452 net tons register. The largest outbound vessel tonnage is credited to Duluth, 10,429,102 net tons register. Chicago, Superior and Milwaukee each showed about 8,000,000 net tons.

**RIVER AND CANAL TRAFFIC.** Data relating to transportation on the rivers and canals of the

country are incomplete. This applies particularly to the commerce of Mississippi River points for which no separate data can be given. Reports of vessel movements at Cairo, Ill., at the confluence of the Ohio and Mississippi rivers, showed a diminution of traffic at that point in 1910; 5875 vessels of 3,202,910 net tons are reported at that point, indicating a decrease of 22 per cent. in the number of vessels and 27 per cent. in the vessel tonnage reported as compared with the average figures for the preceding five-year period. The Erie Canal tonnage of 2,023,185 short tons also showed a slight decrease from the figures of 1909 and the same is true of the traffic carried on all New York State canals, the total, 3,073,412 short tons, being the lowest for the decade, except for the year 1908.

**EDUCATION.** See EDUCATION IN THE UNITED STATES.

**COINAGE.** The following table indicates the amount and character of the coinage as used in the United States in the calendar years 1909 and 1910.

**COINAGE EXECUTED AT THE MINTS OF THE UNITED STATES DURING THE YEARS 1909 AND 1910.**

Denomination	1909	
	Pieces	Value
Double eagles .....	2,988,707	\$59,774,140.00
Eagles .....	598,753	5,987,530.00
Half-eagles .....	4,382,098	21,910,490.00
Quarter-eagles .....	441,899	1,104,747.50
Total gold .....	8,411,457	\$88,776,907.50
Half-dollars .....	5,058,050	\$2,520,025.00
Quarter-dollars .....	16,442,650	4,110,662.50
Dimes .....	14,481,650	1,448,165.00
Total silver .....	35,982,530	\$8,087,852.50
Five cents .....	11,590,526	\$ 579,526.30
One cent .....	117,686,263	1,176,862.63
Total minor .....	129,276,789	\$ 1,756,388.93
Total coinage .....	173,670,596	\$98,621,148.93

Denomination	1910	
	Pieces	Value
Double eagles .....	3,039,417	\$ 60,738,340.00
Eagles .....	3,486,344	34,863,440.00
Half-eagles .....	1,568,050	7,840,250.00
Quarter-eagles .....	492,632	1,231,705.00
Total Gold .....	8,536,493	104,723,735.00
Half-dollars .....	2,366,551	1,183,275.50
Quarter-dollars .....	3,744,550	936,137.75
Dimes .....	16,250,551	1,675,055.10
Total Silver .....	22,361,652	3,744,468.35
Five cents .....	30,169,353	1,508,467.65
One cent .....	152,846,218	1,528,462.12
Total minor .....	183,015,571	3,036,929.83
Total coinage .....	213,963,716	111,505,133.18
Coinage for Gov't. Philippine Islands:—		
Peso pieces .....		3,153,559
20-cento pieces .....		500,259
1-centavo pieces .....		2,700,000
Coinage for Costa Rica:—		
19-centavo pieces .....		400,000
5-centavo pieces .....		400,000

**RECEIPTS AND DISBURSEMENTS.** The following table, compiled from figures given by the Secretary of the Treasury, shows the receipts

and disbursements of the Federal government for the fiscal years 1909 and 1910:

**RECEIPTS**

	1909	1910
Customs .....	300,711,933.95	333,683,445.03
Internal revenue:		
Ordinary .....		268,981,738.48
Corporation tax .....	246,212,643.59	20,951,780.97
Sales of public lands .....	7,700,567.78	6,355,797.49
Miscellaneous .....	48,964,344.52	45,538,953.05
Ordinary receipts .....	603,589,489.84	675,511,715.02
Panama Canal receipts* .....	30,731,008.21	
Public debt receipts .....	45,624,239.50	31,674,292.50
Total, exclusive of postal .....	679,944,737.55	707,186,007.52
Postal revenue .....	203,562,383.07	224,128,657.62
Total incl. postal .....	883,507,120.62	931,314,665.14

\*Proceeds of bonds and premiums.

**DISBURSEMENTS**

	1909	1910
Civil and miscellan... ..	167,001,087.10	171,580,829.79
Postal deficiency .....	19,501,062.37	8,495,612.37
War Department .....	161,067,462.39	155,911,705.93
Navy Department .....	115,546,011.09	123,173,716.68
Indians .....	15,694,618.11	18,504,131.60
Pensions .....	161,710,367.25	160,696,415.88
Int't on public debt .....	21,803,836.46	21,342,978.83
Ordinary disburs... ..	662,324,444.77	659,705,391.08
Panama Canal disbursements .....	31,419,442.41	33,911,673.37
Public debt disbursements .....	104,996,770.00	33,049,695.50
Total, exclusive of postal .....	798,740,657.18	726,666,759.95
Postal expenditures .....	203,562,383.07	224,128,657.62
Total, incl. postal .....	1,002,303,040.25	950,795,417.57
Deficit .....	118,795,919.63	19,480,752.43

The receipts and disbursements for the fiscal year ending June 30, 1911, are estimated by the Secretary of the Treasury in his annual report as follows:

**RECEIPTS**

Customs .....	\$320,000,000
Internal revenue .....	283,000,000
Corporation tax .....	25,000,000
Miscellaneous .....	50,000,000
Total ordinary receipts .....	678,000,000

**DISBURSEMENTS**

Civil establishment .....	174,000,000
Postal deficiency .....	169,000,000
War Department .....	125,000,000
Navy Department .....	16,000,000
Indian service .....	156,000,000
Pensions .....	22,195,000
Interest on the public debt .....	
Total ordinary disbursements .....	662,198,000
Surplus for 1911 in ordinary receipts of... ..	15,805,000
Panama Canal disbursements .....	45,000,000
Miscellaneous redemptions of the public debt .....	400,000
Total estimated deficit of .....	\$ 29,595,000

The following table shows the general stock of money in the United States at the end of the calendar year 1910, and the money in circulation at the end of that year:

	General Stock of Money in the United States Dec. 31, 1910	Held in Treas- ury as Assets of the Gov- ernment Dec. 31, 1910	MONEY IN CIRCULATION	
			Dec. 31, 1910	Dec. 31, 1909
Gold coin including bullion in Treasury .....	\$1,708,828,297	\$180,322,541	605,650,087	\$606,212,413
†Gold certificates .....	73,681,030	73,681,030	849,174,639	789,907,069
Standard silver dollars .....	564,805,508	3,440,089	75,794,419	74,763,075
†Silver certificates .....		11,237,501	474,333,499	474,339,458
Subsidiary silver .....	**157,884,083	15,401,350	142,462,703	146,968,588
Treasury notes of 1890 .....	3,472,000	10,507	3,461,498	3,933,338
United States notes .....	346,681,016	9,263,762	237,412,254	238,666,283
National Bank notes .....	727,705,981	23,614,689	704,091,292	687,113,834
Total .....	\$3,509,356,855	\$316,976,469	\$3,192,380,386	\$3,122,154,538

Population of the United States December 31, 1910, estimated at 93,203,000; circulation per capita, \$34.25. (See Note.)

\* A revised estimate by the Director of the Mint of the stock of gold coin was adopted in the statement of August 1, 1907. There was a reduction of \$135,000,000.

\*\* A revised estimate by the Director of the Mint of the stock of subsidiary silver coin was adopted in the statement of September 1, 1910. There was a reduction of \$9,700,000.

† For redemption of outstanding certificates an exact equivalent in amount of the appropriate kinds of money is held in the Treasury, and is not included in the account of money held as assets by the government.

‡ This statement of money held in the Treasury as assets of the Government does not include deposits of public money in National Bank depositaries to the credit of the Treasurer of the United States, amounting to \$35,542,254.92.

Note.—The figures representing the population of the United States during the past ten years have been estimated upon the basis of the census of 1900. The figures for this statement are estimated upon the basis of the census of 1910, representing the population of continental United States.

**NATIONAL DEBT.** The amount and classification of the United States national debt at the end of the calendar years 1908, 1909 and 1910, were as follows:

	Dec. 31, 1908	Dec. 31, 1909	Dec. 31, 1910
Interest-bearing debt at from 2 to 4 per cent. and re- deemable from 1907 to 1925 inclusive .....	\$ 912,900,850.00	\$ 913,317,490.00	\$ 913,317,490.00
Debt on which interest has ceased since maturity .....	3,448,935.26	2,365,725.26	1,995,045.26
Debt bearing no interest .....	400,501,382.78	380,637,483.78	387,919,402.43
Gross debt .....	\$1,316,851,168.04	\$1,296,220,699.04	\$1,303,231,937.69
Cash balance .....	169,501,417.34	84,048,865.69	89,393,472.14
Net debt .....	\$1,147,349,750.70	\$1,212,171,833.35	\$1,213,838,465.55

### ARMY

**STRENGTH.** The actual strength of the regular army on October 15, 1910, was 4310 officers and 67,459 enlisted men or a total of 71,769. As compared with a strength reported on the same date, 1909, this shows an increase of 101 officers and a decrease of 4381 enlisted men, making a net decrease in the regular army during the year of 4280. These figures do not include 3486 men of the hospital corps. There are also in the service 166 officers and 5100 enlisted men of the Philippine scouts. This is an increase of nine officers and a decrease of 472 enlisted men during the year. During the year four more companies of Philippine scouts were given a battalion organization, making a total of 12 battalions. The following table gives the distribution among the different branches of the service on October 15, 1910:

Branches of service	Officers	Enlisted men	Total
General officers .....	21		21
Staff corps and department .....	924	62,316	3,240
Engineers .....	186	1,817	2,003
Cavalry .....	760	11,003	11,763
Field artillery .....	232	4,807	5,039
Coast artillery corps .....	667	17,930	18,597
Infantry .....	1,520	23,666	25,186
Miscellaneous .....		5,920	5,920
Total regular army .....	64,310	667,459	71,769
Philippine scouts .....	166	5,100	5,266
Aggregate .....	64,476	672,559	77,035

a Including 197 lieutenants of the medical reserve corps on active duty.

b Not including 3,286 enlisted men of the hospital corps.

The table below gives the geographical distribution on the same date, including the Philippine scouts, but not including the hospital corps:

Geographical distribution	Officers	Enlisted men	Total
In the United States .....	3,366	53,595	56,961
In Alaska .....	50	1,078	1,128
In the Philippines .....			
Regular army .....	719	10,243	10,962
Philippine scouts .....	166	5,100	5,266
In Porto Rico .....	29	575	604
In Hawaii .....	72	1,299	1,371
Troops en route and officers at other foreign stations .....	74	669	743
Total .....	4,476	72,559	77,035

**OFFICERS.** On June 30, 1910, there were 4273 commanding officers on the active list of the regular army. Of these, 1167, including 65 chaplains, were general officers or officers of the staff corps and departments, and 3106 belonging to the line.

During the year 311 second-lieutenants were added to the army, 183 having been appointed from the Military Academy, 26 from the enlisted men of the army and 102 from civil life. On July 1, 1910, there were 25 vacancies in the line of the army, one in the Coast Artillery Corps and 24 in the Infantry.

Eighty officers were retired during the fiscal year and the total number of the retired list on June 30, 1910, was 1015. Of those retired, 49 were retired for disability, 15 on their own application, 14 by operation of law, having reached the age limit, and two after a second failure to pass the professional examination. Of the re-

tired officers, 89 were under assignment to special duty during the year. Some of these were instructors of educational institutions, others were detailed with the State militia, while still others were on recruiting service.

**ENLISTED MEN.** The total number of enlistments in the army during the fiscal year, exclusive of the hospital corps and Philippine scouts, was 17,973, of whom 7268 were re-enlistments and 10,705 were original enlistments. The percentage of native-born white and colored among the original enlistments was 88. In making these enlistments the recruiting officers examined 100,966 men, of whom 81,878, or about 81 per cent. of the whole number, were rejected as lacking in either mental, moral or physical qualifications.

Desertions from the army, which form one of its most serious problems, were considerably less in 1910 than in the preceding year. They numbered, however, 3464, or a percentage of 3.66 against 4.97 in 1909. The Secretary of War has adopted a system which consists of prompt and vigorous pursuit of the deserter by means practically certain to result in his apprehension and subsequent punishment as a military convict under the hard and rigorous conditions of prison discipline. The decrease in the number of desertions in 1910 may be attributed to this system of apprehending and punishing deserters.

**LOSSES.** During the year the army lost 148 officers and 23,836 enlisted men. Of the officers, 17 were killed in action or died of their wounds, diseases, etc.; 46 resigned or were discharged, 5 were dismissed, and 80 retired. Of the men 11,911 were discharged upon expiration of term of service, 3464 deserted, 320 were killed in action or died of wounds, diseases, etc., 305 retired, and the remainder were discharged for disability or by general court-martial or by order.

**HEALTH AND MORTALITY.** The number of deaths in the enlisted strength from all causes in 1910 was 370, of which 228 were from disease and 142 from injury, six of the latter being killed by hostile Moros in action or while on sentry duty. The principal causes of death from disease were tuberculosis, 43; organic disease of the heart, 36; pneumonia, 32; typhoid fever, 19. Fifty-one deaths occurred from gunshot wounds, 28 from drowning and 11 from acute poisoning. There were 33 suicides and 15 homicides. The deaths among the officers during the year numbered 18, and 49 were retired on account of disability. The diseases causing the greatest number of retirements were organic disease of the heart, and neurasthenia. Of the 659 officers of field rank who were subject to the annual physical test, 38 were excused. Among the Philippine scouts 28 were killed in action, or died of wounds, disease, etc. The principal causes of death were beriberi and cholera. Hookworm disease has been found in a considerable portion of southern-bred recruits. Out of a total of 695 recorded examinations, nearly 37 per cent. have been found infected. The eastern half of Kentucky furnished the greater number. The infection exists also in the Philippine Islands. A campaign against the disease has been carried on with energy and success in the Philippines and on a far larger scale than has been done anywhere else.

**MILITARY TOURNAMENTS.** Troops of the regular army participated in military tournaments during the year at Toledo, O.; Dallas, Texas; Des Moines, Ia.; Albany, N. Y.; Nashville,

Tenn.; Chicago, Ill., and Tacoma, Washington. The attendance at the Chicago tournament was unusually large, over a million people having attended. These tournaments comprised, among other things, reviews of troops, competitive and exhibition drills of different arms of the service, tests in wall scaling, building and demolishing bridges and exhibitions in packing.

**IMPROVED EQUIPMENT.** A detailed account of the improved equipment for the United States troops will be found described in the article **MILITARY PROGRESS.** The development of military aeronautics is also noted in the same article.

**PANAMA CANAL DEFENSES.** In accordance with the recommendation of the National Coast Defense Board, the 61st Congress was asked to include in the estimates for the fiscal year \$19,546,843 for the fortification of the termini of the Canal, including the construction of posts for the permanent garrison, and of this amount to appropriate and make immediately available \$7,000,000 toward the execution of the project of fortification. Indications at the close of the year were that this provision would be made.

**BROWNSVILLE INCIDENT.** The long-drawn out Brownsville incident, arising from the discharge of certain members of the 25th battalion of colored soldiers for alleged assault upon citizens of Brownsville, Texas, in 1906, was finally terminated by the report of the military court of inquiry which, on April 6, confirmed the guilt of the soldiers of the 25th infantry. Captain Samuel P. Lyon, who was in command of Company D of the 25th infantry, was tried by court-martial from June 20 to July 5, 1910, and was acquitted of all blame. This followed similar action in the case of two other officers who were in command of colored troops at that time.

## NAVY

**NAVAL STRENGTH.** The strength of the navy in 1910 is shown in the articles **BATTLESHIPS** and **NAVAL PROGRESS.**

**ORGANIZATION.** The plan of the present organization of the Navy Department aims to place at the disposition of the Secretary of the Navy expert knowledge and information in order that he may keep in touch with matters over which he has charge. It went into effect late in 1909. Its essential feature is the grouping of different bureaus of the department into divisions and the appointment of four aids, who are to keep informed as to the work of each division and supply the Secretary with necessary expert advice on the duties coming under these divisions. The aids are the following: Aid for operation, Rear-Admiral Wainwright; aid for material, Captain Fletcher; aid for inspection, Rear-Admiral Ward; aid for personnel, Rear-Admiral Potter. Rear-Admiral Wainwright worked out during the year a reorganization of the battleship fleet and the torpedo vessels, which has brought about markedly greater efficiency. The other aids have performed much useful service also in connection with their duties.

**NAVY YARDS.** During the year the Secretary of the Navy inspected all the continental navy yards both on the Atlantic and on the Pacific coasts and the naval station at Guantanamo, Cuba. In his annual report he declares that the present organization at navy yards has made for economy and efficiency and that a steady im-

provement has been made and may be expected to continue in these respects.

**ECONOMY IN ADMINISTRATION.** The Navy Department estimates for the expenses of the naval establishment for the fiscal year 1911, showed a saving of about \$5,000,000 as compared with the amount appropriated in 1910. One of the largest expenditures of government funds in the Navy Department of the past has been due to repairs made upon vessels of little or no military value when the repairs were completed. During the past year these repairs have been kept down to a minimum and some vessels have been struck from the navy list and disposed of.

**CRUISING FLEETS.** The Atlantic Fleet under the command of Rear-Admiral Seaton Schroeder, spent the year in such exercises and cruising as seemed best calculated to keep it in efficient condition, including cruising in the West Indies during the winter. The Pacific Fleet, under the command of Rear-Admiral Giles B. Harber, in addition to the usual drills and exercises during the year, made a cruise to Honolulu, Manila, China and Japan and returned to the West coast of the United States. For strategic and administrative reasons the department re-established in 1910 the Asiatic Fleet, and the ships employed in Asiatic waters and formerly forming a part of the Pacific Fleet were constituted as a separate fleet under the command of Rear-Admiral John Hubbard as commander-in-chief. These vessels continued their service in protecting American interests in the Orient.

In response to an invitation from the president of Argentina, a special service squadron consisting of the armored cruisers *Tennessee*, *Montana*, *North Carolina* and *South Dakota* and the scout cruiser, *Chester* was organized under the command of Rear-Admiral Sidney A. Staunton as commander-in-chief, and attended the ceremonies in that country in connection with the centennial celebration of independence.

A number of smaller vessels were actively employed during the year in protecting the American interests in tropical American waters, especially on both coasts of Nicaragua. In connection with this service a force of marines was embarked on board the *Buffalo* and held at Corinto ready to land should circumstances require it. To protect American interests in Greytown and Bluefields during the Nicaraguan revolution the naval officers notified both parties that hostilities would not be allowed to take place in either city and men of the navy and marines were landed at Bluefields in June to insure compliance with this order.

A new organization of the torpedo vessels of the navy including submarines was put into effect during the year with marked benefit to the service. This groups all such vessels in commission in the Atlantic into the Atlantic Torpedo Fleet under the command of a single officer experienced in this class of work. The Pacific and Asiatic Torpedo Fleets have been similarly constituted in those waters.

On account of serious troubles with the natives in Liberia, the department kept vessels on the Liberian coast during the year to protect American interests and carry out obligations imposed upon the United States by its treaty with Liberia.

**AVIATION.** Important developments in naval aviation will be found discussed in the article **NAVAL PROGRESS.**

## POST OFFICE

The receipts of the Post Office Department for the fiscal year ending June 30, 1910, amounted to \$224,128,657 and the expenditures to \$229,977,244. The total excess of expenditures over receipts was \$5,848,586. This is the smallest deficit from postal operations shown for many years. The fiscal year 1909 showed a deficit of \$17,500,000. Thus in the space of twelve months a reduction of \$11,500,000 was shown in the amount of the annual difference between expenditures and receipts. This reduction is remarkable as being several times larger than any reduction accomplished in a previous year. It was made also without any curtailment of postal facilities; on the contrary, the service was largely extended during the year. The policy of the postal administration has been to wipe out losses by increasing the postal business along profitable lines and, while thus enlarging the department's income, reduce as far as possible the rate of expenditure by cutting out wasteful processes, by simplifying and rendering more effective the methods of handling mail and by raising to the highest possible standard of efficiency the officers and employees. The principal receipts were from the following sources: Sales of stamps, stamped envelopes, etc., \$202,064,887; second-class postage, \$8,174,281; third and fourth class postage, \$4,418,428; revenue from money order business, \$4,046,932. The largest expenditure was for the transportation of mails on railroads, \$44,654,515. The expenses of rural delivery were \$36,844,968 and for city delivery, \$31,683,639.

**SECOND-CLASS MAIL.** The most serious problem in the administration of the Post Office Department is that of the transportation of second-class mail. The Postmaster-General declares that the government sustains an enormous loss in the handling and transportation of this class of mail matter, and owing to the rapid increase in the volume of such mail the loss is constantly growing. Recommendations for an increase in the charge for transporting second-class mail, especially magazines and other periodicals, which he suggested in his annual report for 1909, raised a great deal of criticism which was carried on during 1910. These recommendations do not include an increase in the postage on reading matter in magazines or periodicals. Such an increase, Mr. Hitchcock says, would place a special burden on a large number of second-class publications, including educational and religious periodicals that derive little or no profit from advertising. For these publications and also for any other legitimate reading matter in periodical form, the department favors the continuation of the present low postage rate of one cent a pound and recommends that the proposed increase in rate be applied only to magazine advertising matter. This plan, he declares, would be in full accord with the statute governing second class mail, a law that never justified the inclusion under the second-class rates of the vast amount of advertising now transported by the government at a tremendous loss. Newspapers are not included in the plan for a higher rate on advertising matter because, being chiefly of local distribution, they do not burden the mails to any such extent as the widely circulating magazines. Mr. Hitchcock affirms that if the magazines could be required to pay what it costs the government to carry their advertising pages, the department's rev-

venues would eventually grow large enough to warrant one cent postage on first class mail.

The claims of Mr. Hitchcock were combatted by publishers of magazines who declared that the first-class mail which resulted from their advertising pages paid a sum which was more than equivalent to the alleged loss by the government in transporting the entire magazine at the rate of one cent a pound. Legislation authorizing the increase on the rate of advertising matter to four cents a pound was introduced into Congress, but no action had been taken at the close of the year.

**RURAL MAIL SERVICE.** Next to the heavy loss resulting from the low postage on second-class mail, the chief inroad into the profits of the postal service is made by the excessive cost of rural delivery. The Postmaster-General, however, declares that the advantages of this delivery are such as to warrant its further extension even at a considerable loss to the government. During the year the star route and rural delivery systems were consolidated and this is expected to bring about a considerable reduction in expense.

**POSTAL SAVINGS BANKS.** The discussion of the postal savings bank system as it was inaugurated in 1910 in accordance with an act of Congress on June 25 of that year, will be found in the article POSTAL SAVINGS BANKS.

**FRAUDULENT USE OF THE MAILS.** An aggressive crusade was carried on by the Post Office Department during the year against the fraudulent use of the mails. During the last few months of 1909 the principal officers of 32 corporations, companies and firms were placed under arrest by post-office inspectors for swindling the public by this method. In 46 additional cases individuals were arrested for conducting similar schemes to defraud. The Postmaster-General estimates that the 80 important cases brought to a head during the year represent swindling operations that have filched from the American people in less than a decade fully \$100,000,000. As the work of investigation proceeded it became apparent that schemes for swindling through the mails were vastly more numerous and extensive than had been supposed. Many of these enterprises proved to be as far reaching in their ramifications as the postal service itself. Not only have they swindled many thousands of people out of money foolishly invested, but to a large extent they have weakened confidence in legitimate enterprises. The former practice of the Post-Office Department in issuing fraud orders in such cases proved ineffective. While by that method the offending concern was deprived of the use of the mails it was a simple matter for its promoters to organize under a new name and thus evade the law. In the present crusade the department's plan has been to secure the arrest, conviction and imprisonment of the swindlers themselves. Swindling through the mails has become so extensive as to require the constant employment of numerous inspectors in the work of suppression. The results of all investigations are turned over to the Department of Justice to determine the question of prosecution.

**PRESIDENTIAL POSTMASTERS.** During the year President Taft issued an order classifying all assistant postmasters. The Postmaster-General in his annual report declares that the entire postal system should be taken out of politics. He recommends that all presidential postmasters

of all grades from the first-class to the third should be placed in the classified service. This policy he says would unquestionably result in a better standard of service. The old practice of making frequent changes for political purposes had a most demoralizing effect and resulted in unwarranted expenditures due to poor management. The inclusion of postmasterships as a part of the classified postal service would furnish a new incentive for good work on the part of subordinate officers and employes ambitious to reach ultimately the rank of postmaster.

The order of President Taft, referred to above, dated September 30, 1910, becoming effective December 1st, placed within the competitive service the position of assistant postmaster at every first and second class post office. These postmasters numbered 2237. The order included also 1386 clerical positions in first and second-class offices. With this action practically all positions in the post offices mentioned became a part of the classified competitive service.

#### PENSIONS

The total number of pensioners on the rolls at the close of the fiscal year 1910 was 921,083, which was a decrease during the year of 25,111. New pensions granted during the year numbered 29,219 and the losses from the rolls by death and from other reasons was 54,330 leaving the net loss, as indicated above, 25,111. The number of the survivors of the Civil War on the rolls at the close of the year was 562,615, a net reduction of 31,345. The total number of survivors whose names were dropped from the roll during the year on account of death was 35,312. The number of soldiers and sailors on the pension roll at the close of the year was 602,180; the number of widows and dependents was 318,461 and the number of army nurses was 442. At the close of the year there remained on the rolls one pensioner of the Revolutionary War, a daughter. There remained 338 widows pensioners of the War of 1812, 1560 survivors and 2822 widows of soldiers of the Indian Wars; 2042 survivors and 6359 widows of soldiers of the War with Mexico. The survivors of the War with Spain numbered 22,783, while the widows numbered 1183. The total disbursements for pensions during the fiscal year was \$159,974,056. The average value of each pension at the close of the year was \$171.90, an increase of \$2.08 per pensioner, as compared with the previous year. This increase was due to the increase of pensions granted by the bureau upon applications filed by pensioners and to the increased rates granted by Congress, through what are known as special acts. The number of special act pensioners on the roll at the close of the year was 19,422, an increase of 3015. The amount expended for navy pensions was \$3,335,457. An act of Congress provides that the naval pensions shall be paid from the income of the navy pension fund as far as that fund is available for the purpose. The income from the fund, however, pays only about 7 per cent. of the amount required for navy pensions. The total amount disbursed was divided as follows: To invalids, widows, minors, and dependents of the regular establishment, \$3,000,990; to invalids, widows, minors and dependents of the Civil War, \$44,657,104, and by the Act of February 6, 1907, \$60,821,754. There was dis-

tributed also on account of the Civil War by the Act of June 27, 1890, \$13,625,202. To the invalids, widows, minors and dependents of the War with Spain was disbursed \$3,807,919; to the widows of the War of 1812, \$51,279; to the survivors and widows of the War with Mexico, \$1,463,984; and to the survivors and widows of the Indian Wars, \$621,509. The total amount disbursed for pensions from 1866 to 1910 was \$3,976,811,125, and the total disbursements for pensions from 1790 to 1910 was \$4,073,056,569. The largest amount paid in any one year was in 1909 when \$161,973,703 were disbursed. The largest number of pension certificates issued in any one year since 1901 was in 1908, when 328,676 certificates were issued. This was chiefly due to special legislation passed in 1907. At the close of the fiscal year 1910 there were pending 47,295 claims for pensions. Of these 34,818 were on account of the Civil War. Since 1861 there have been granted by special acts of Congress 32,401 pensions and increases of pensions. During the second session of the 61st Congress 6063 persons were included in the special acts passed. During the year 61 cases of criminal prosecutions on account of offenses against the pension laws were brought, in 55 of which convictions were secured.

#### PATENTS

The total number of patents granted in the fiscal year ending June 30, 1910 was 36,287, an increase of 1955 over the fiscal year preceding. At the end of the year arrangements had been made for removing models of invention from the storage warehouse to the sub-basement of the House of Representatives' Office Building. As a result of the increase in the business of the patent office and the increased force that must necessarily be provided from year to year, the present building is now crowded to its utmost capacity. The Secretary of the Interior in his annual report recommends the building of an addition to the Patent Office in the court of the present building or by constructing a new building either for the use of the Patent Office or for the Secretary's Office and one or more of the bureaus.

#### NATURALIZATION

The total number of declarations of intention filed during the fiscal year 1910 was 167,226. Of these the largest number, 42,582, were filed in the courts of the State of New York. In the Illinois courts 14,032 were filed and in the California courts, 6529; in the Massachusetts courts, 11,985, and in the Pennsylvania courts 18,887. The total number of petitions for naturalization filed was 55,038 and the total number of certificates of naturalization issued was 39,206. Of these, 7928 were issued from New York. The number of courts State and Federal exercising naturalization jurisdiction in the year 1910 was 2474. Of these the State courts numbered 2247, and the Federal courts 227. The burden of naturalization work is borne largely by the Federal courts, for although they constitute but 10 per cent. of the total number which received naturalization papers in 1910 they received 36 per cent. of the declarations of intention, more than 27 per cent. of the petitions and gave certificates on more than 28 per cent. of all the petitioners who were admitted to citizenship.

#### BUREAU OF MINES

By an act of Congress approved May 16, 1910, which became operative on the July following, Congress established under the Department of the Interior a National Bureau of Mines. The widespread demand for the creation of this bureau has been developed among the varied mining interests for a number of years in recognition of the increasing importance of mining as one of the foundation industries of the country. Its establishment was hastened by a succession of serious mining disasters during the past few years and by a growing realization of the extent to which the mineral resources of the country were being wasted in both the mining and metallurgical branches of the industry. The main purpose of the bureau is to aid in lessening this loss of life and waste of resources in the operation of the mining industry. The act creating the bureau transferred to it the experienced personnel including a considerable number of engineers and chemists and the extensive equipment brought together and employed under the Geological Survey in the development of investigations similar to those which are being conducted by the Bureau of Mines. The present organization, therefore, will serve as a nucleus in the beginning of a more extensive work to be hereafter developed. The Bureau of Mines will continue to conduct the investigation of the fuels belonging to or for the use of the government heretofore carried on by the Geological Survey. Its largest and most urgent work for some time, however, will be that connected with the investigation of mine explosions and the methods of preventing them. The Bureau will take no part in mine supervision or mine inspection which are within the province of the several States. It will, however, do what it can to encourage the investigation of local mining problems by the States and private corporations most directly interested. The Bureau will not undertake to do or to supplant the professional work which is now being done or is to be done by private mining engineers. Its main work will be in conducting such investigations and inquiries as relate to the more general phases of the mining and metallurgical branches of the industry and the distribution of the results of its investigations and inquiries among the mine workers and mine operators of the country in such a manner as will be most effective in accomplishing these purposes. Joseph A. Holmes was appointed Director of the Bureau.

#### DISTRICT OF COLUMBIA

The number of inhabitants of the District of Columbia, according to the enumeration of the United States Bureau of Census during the month of April, 1910, was 331,069. The total expenditures for the administration of the government of the District during the fiscal year 1910 amounted to \$12,815,795. The total receipts amounted to \$13,179,714. The total enrollment in the schools of the District for the fiscal year was 56,136. Of these 38,071 were white and 18,065 were colored.

Two new street railway lines were constructed during the year, one by the Baltimore and Washington Transit Company, and the other by the Washington Spa Springs and Greta Railway Company. The old navy yard bridge

across the Anacostia River was replaced by the new Anacostia Bridge. The estimated value of the building work done during the year, not including government buildings, was \$16,431,946. The number of permits issued was 10,937.

The affairs of the District are administered by three commissioners, appointed by Congress. These commissioners in 1910 were Cuno H. Rudolph, John A. Johnston, and William V. Judson.

#### CABINET

The President's Cabinet remained unchanged during 1910. A strong effort was made to induce Secretary Knox to become candidate for governor of Pennsylvania and it is possible that he would have agreed to do this had it not been for the strong objection of President Taft. (See PENNSYLVANIA.) Mr. Dickinson, Secretary of War, made a long tour, which included the Philippine Islands, and an account of this will be found in the article PHILIPPINE ISLANDS. Although there were rumors of possible resignation during the year, Mr. Ballinger continued to hold his place as Secretary of the Interior. The bitterness of the attacks against him somewhat abated during the year, although the decision of a majority of the committee of the Senate and House acquitting him from all blame in the Ballinger-Pinchot controversy was severely criticised by his opponents. These incidents are discussed in the section *Administration* below.

Mr. Hitchcock's administration of the Post Office Department resulted in a decrease of the customary deficit by about \$11,000,000. The proposal to increase the postage on second class matter aroused much criticism, especially on the part of publishers of periodicals and magazines. This is discussed under *Post-Office*. The Cabinet at the end of the year was composed as follows: Secretary of State, Philander Chase Knox of Pennsylvania; Secretary of the Treasury, Franklin MacVeagh of Illinois; Secretary of War, J. M. Dickinson of Washington; Secretary of the Navy, John von L. Meyer of Massachusetts; Secretary of the Interior, Richard A. Ballinger of Washington; Secretary of Agriculture, James Wilson, of Iowa; Postmaster-General, Frank H. Hitchcock of Ohio; Attorney-General, George W. Wickersham of New York, and Secretary of Commerce and Labor, Charles Nagel of Missouri.

#### CUSTOMS COURT

In accordance with the act of Congress creating a Customs Court of Appeals, President Taft early in 1910 named as judges of the new court Alfred C. Coxe, presiding judge, William H. Hunt, James F. Smith, O. H. Barber, and Marion De Vries. Some criticism was made of these appointments, and before the Senate could act on their confirmation they were withdrawn and the President sent new nominations, naming Robert N. Montgomery of Michigan as presiding judge. The associate judges were James F. Smith of California, Arion M. Barber of Vermont, and Marion De Vries of California. The salaries of these judges were fixed by law at \$10,000, but Congress appropriated for the year 1909-10 only \$7000 and the Urgent Deficiency Appropriation Act, approved February 25, 1910, made that allowance permanent. This court has final jurisdiction over all disputed questions connected with customs.

**CUSTOMS FRAUDS.** An account of the conviction of the officials of the American Sugar Company for customs fraud perpetrated against the government will be found discussed in detail in the article **TRUSTS**.

The activity of Collector Loeb of New York in enforcing the customs laws against smuggling, which began with his assumption of office, continued during 1910. More persons were convicted of smuggling during the year than in many years previous. They were punished by fines and in several cases by imprisonment.

In September Charles D. Drew and Charles H. Wardell, former custom house weighers, and George E. Bedell, former deputy surveyor of the Custom House, New York City, were tried for fraudulent weighing and the taking of bribes from importers. Among those who testified were four men who had been weighers, who declared that they had weighed fraudulently and had been paid for it. One of these men named six Italian firms of importers that had bribed him and another named eight. One of the men who confessed was Register of Deeds for Passaic county, New Jersey. Thomas Doyle, formerly dock superintendent for Arbuckle Brothers, sugar refiners, asserted that his superior officers paid through him salaries of \$100 per month to custom house weighers, and that two of the defendants had been so paid. George Lunny, a go-between for importers, named six weighers whom he declared he had bribed. He said that he had never found a weigher who would not weigh dishonestly if he were paid for doing so. Otto Westervelt, formerly the head of an old importing house of New York City, confessed that he had paid weighers for false weighing, using Lunny as an agent. In October members of the art firm of Duveen & Co. were indicted for defrauding the government by undervaluing art objects which they import and sell to collectors. They were also defendants in a civil suit in which the government seeks forfeitures exceeding \$1,000,000.

In November assertion was made by government officials that prominent firms of importers in New York City have for several years been defrauding the treasury by undervaluation and that the government has lost duties amounting to several millions of dollars. A civil suit was begun against Joseph Brooke and Company, importers of woollens and worsteds, to recover \$200,000, alleged to be due the government through undervaluation of imports.

#### DIPLOMATIC SERVICE

The Ambassadors accredited by the United States to foreign countries remained unchanged during the year. Whitelaw Reid, Ambassador to Great Britain, the only ambassadorial appointee left over from the Roosevelt administration, continued in office and, although there were rumors of a possible successor during the year, nothing was said or done by the President to indicate that Mr. Reid would not continue to serve during the former's term. In October, Oscar C. Straus, Ambassador to Turkey, informally submitted his resignation to President Taft. Mr. Straus had served in this position since May, 1909. The reason given by him for his retirement was that he was wearied of the diplomatic service and wished to resume his residence in the United States. No action

had been taken on this resignation at the end of the year. Mr. Straus has the distinction of having served as diplomatic representative at Constantinople under three successive appointments. He was first named as Minister to Turkey on March 24, 1887. Two years later he resigned. He was appointed to the same post in 1898 and again served only two years. From 1906 to 1909 he was Secretary of Commerce and Labor. Among Ambassadors accredited to the United States by foreign countries there were three changes during the year. Joaquim Nabuco, from Brazil, one of the most accomplished and esteemed foreign representatives at Washington, died on January 17, 1910. His body was conveyed to Brazil by a United States war vessel. Edmundo Mayor des Planches, Ambassador from Italy, was succeeded early in the year by Marchese Cusani-Confalonieri. Hussein Kiazim Bey, Turkish Ambassador, appointed in 1909, was recalled and was succeeded by Youssef Zia Pasha.

Among the Ministers Plenipotentiary sent by the United States to foreign countries there were many changes during the year, especially in the countries of South and Central America. The most interesting appointment perhaps was that of Fred W. Carpenter, formerly Secretary

to the President who on his resignation from this office was appointed Minister to Morocco. James F. Stutesman, Minister to Bolivia, resigned from the diplomatic service and was succeeded by Horace G. Knowles, formerly Minister to the Dominican Republic. Mr. Knowles was succeeded at San Domingo by W. W. Russell, who formerly represented the United States in Venezuela. To succeed Mr. Russell, John W. Garrett of Pennsylvania was appointed. Another interesting appointment was that of W. D. Crum as Minister to Liberia. Mr. Crum was the colored Collector of Customs at Charleston, S. C., whose appointment to that position was one of the troublesome questions of President Roosevelt's administration. The other changes in Central and South America were chiefly transfers of the Ministers from one post to another.

There were also numerous changes made in the Ministers representing foreign countries in the United States. New Ministers were appointed from Belgium, from Chile, whose Minister, Don Anibal Cruz, died during the year, from Colombia, Cuba, Ecuador, Norway, Sweden, Persia and Spain. The Ambassadors and Ministers from and to the United States will be found in the table below:

#### AMBASSADORS

Country	Accredited by United States	Accredited to United States
Austria-Hungary.....	Richard C. Kerens, Mo., 1909	Baron Hengelmüller von Hengervár.....1902
Brazil.....	Irving B. Dudley, Cal., 1909	J. J. Jusserand.....1903
France.....	Robert Bacon, Mass., 1909	Count Johann Heinrich von Bernstorff.....1908
Germany.....	David J. Hill, N. Y., 1908	James Bryce.....1907
Great Britain.....	Whitelaw Reid, N. Y., 1905	Marchese Cusani-Confalonieri.....1910
Italy.....	John G. A. Leishman, Pa., 1909	Baron Yasuga Uchida.....1909
Japan.....	Thomas J. O'Brien, Mich., 1907	Don Francisco de la Barra.....1909
Mexico.....	Henry L. Wilson, Wash., 1909	Baron Rosen.....1905
Russia.....	W. W. Rockhill, D. C., 1909	Youssef Zia Pasha.....1909
Turkey.....	Oscar H. Straus, N. Y., 1909	

#### MINISTERS PLENIPOTENTIARY

Argentina Republic.....	Charles H. Sherrill, N. Y., 1909	Don Epifanio Portela.....1905
Belgium.....	Charles P. Bryan, Ill., 1909	Count Conrad de Buisseret.....1910
Bolivia.....	Horace G. Knowles, Del., 1908	Don Ignacio Calderón.....1904
Chile.....	Henry P. Fletcher, Pa., 1909	
China.....	W. J. Calhoun, Ill., 1909	Chang Yin Tang.....1909
Colombia.....	Elliott Northcott, W. Va., 1909	Don Francisco de P. Borda.....1910
Costa Rica.....	William L. Merry, Cal., 1897	Joaquín Bernardo Calvo.....1899
Cuba.....	John B. Jackson, N. J., 1909	Dr. Francisco C. Justiz.....1910
Denmark.....	Maurice F. Egan, D. C., 1907	Count Moltke.....1908
Ecuador.....	William C. Fox, N. J., 1907	Dr. Don Rafael M. Arizaga.....1910
*Greece.....	George H. Moses, 1907	L. A. Coromilas.....1906
Guatemala.....	William F. Sands, 1909	Luis Toledo Herrarte.....1907
Haiti.....	Henry W. Furniss, Ind., 1905	H. Pauleus Sannon.....1909
Honduras.....	Fenton R. McCreery, Mich., 1905	Dr. Luis Lazo Arriaga.....1908
Morocco.....	Fred W. Carpenter, Cal., 1909	
†Netherlands.....	Arthur M. Beaupre, Ill., 1908	Jonkherr J. Loudon.....1908
Nicaragua.....		
Norway.....	Herbert H. D. Peirce, Mass., 1906	H. H. Bryn.....1910
Panama.....	Thomas C. Dawson, Ia., 1906	C. C. Arosemena.....1909
Paraguay.....	E. V. Morgan, N. Y., 1909	
Persia.....	Charles W. Russell, D. C., 1909	Mirza Ali Kuli Khan.....1910
Peru.....	Leslie Combs, Ky., 1906	Felipe Pardo.....1906
Portugal.....	Henry T. Gage, Cal., 1909	Viscount de Alte.....1902
†Rumania.....	John R. Carter, 1909	
Salvador.....	W. D. Crum, S. C., 1909	Federico Mejía.....1907
Siam.....	Hamilton King, Mich., 1903	Phya Akharaj Varadhara.....1901
Spain.....	Henry C. Ide, Vt., 1909	Don Juan de Ríafío y Gayangos.....1910
Sweden.....	Charles H. Graves, Minn., 1905	Count J. J. A. Ehrensward.....1910
Switzerland.....	L. S. Swenson, Minn., 1905	Dr. Paul Ritter.....1909
Uruguay.....	Edward G. O'Brien, N. Y., 1909	Luis Mellon Lafinur.....1907
Venezuela.....	John W. Garrett, Md., 1909	Don F. Ezequiel Rojas.....1909

#### MINISTERS RESIDENT AND CONSULS

Dominican Republic.....	W. W. Russell, D. C., 1910	Liberia.....	W. D. Crum, S. C., 1910
-------------------------	----------------------------	--------------	-------------------------

## DIPLOMATIC AGENTS

Bulgaria.....John R. Carter, 1909  
 Egypt.....Peter A. Jay, N. Y., 1909

\* Accredited also to Montenegro.  
 † Accredited also to Luxemburg.

‡ Accredited also to Servia.  
 § Accredited also to Paraguay.

## FEDERAL JUDICIARY

The year 1910 was marked by greater and more important changes in the personnel of the United States Supreme Court than perhaps any other year in the history of the government. The deaths of Chief Justice Fuller and Associate Justice Brewer caused two vacancies, while the resignation of Associate Justice Moody, on account of illness, created a third. It was well known that President Taft considered the appointment of Justices of the Supreme Court one of the most important functions of his office and his choice of jurists to fill these offices was anticipated with the greatest interest. On April 25 he appointed Governor Hughes of New York Associate Justice to succeed Justice Brewer. It had been known that the President wished Governor Hughes to accept this position and it was also known that the latter preferred judicial to political duties. The appointment and its acceptance therefore were no surprise. Governor Hughes's well-known ability as a lawyer, his knowledge of public affairs and his high moral character, in the opinion of men of all parties, eminently fitted him for a place on the Supreme Bench. In December President Taft appointed Associate Justice Edward Douglass White (q. v.) to succeed late Chief Justice Fuller (q. v.) as Chief Justice of the Supreme Court. The appointment was, in a measure, a surprise, as it had been generally expected that Justice Hughes would receive this appointment. It was said that opposition arose to the appointment of the latter, partly on account of his inexperience on the bench and partly on account of a temperament somewhat less compromising than was deemed essential in the case of a presiding justice. Mr. Justice White is a Southerner and a Democrat, a veteran of the Civil War on the Confederate side. He has long been considered one of the most able of the jurists on the Supreme Bench, and his appointment was received with general satisfaction. The President at the same time appointed Joseph R. Lamar (q. v.) of Augusta, Ga., formerly Justice of the Supreme Court of Georgia, and Willis Van Devanter (q. v.) of Wyoming, judge of the Eighth Judicial District, Associate Justices. The Supreme Court as made up at the end of the year was composed of six Republicans and three Democrats. The members of the court, with the dates of their appointments, are as follows: Chief Justice Edward D. White, Louisiana (1910); Associate Justices, John M. Harlan, Kentucky (1877); Joseph McKenna, California (1898); Oliver W. Holmes, Massachusetts (1902); William R. Day, Ohio (1903); Horace H. Lurton, Tennessee (1909); Charles E. Hughes, New York (1910); Willis Van Devanter, Wyoming (1910); Joseph R. Lamar, Georgia (1910).

JUDICIAL DECISIONS. The Supreme Court rendered many important decisions during the

year. The most important and interesting from a public standpoint were those relating to corporations and railroads, and these will be found discussed under the headings RAILWAYS and TRUSTS. In April it was announced that the great Tobacco and Standard Oil cases would have to be argued again before the court as a result of the death on March 28 of Justice Brewer and the absence of Justice Moody on account of illness. On May 31 the court restored to the docket for reargument the sixteen cases brought to test the legality of the corporation tax law. This postponed the decision on these important cases for at least six months. On November 28 several important decisions were handed down. These included the affirmation of a judgment of the Supreme Court of Michigan affirming a judgment awarded to the Commercial Milling Company of Detroit against the Western Union Telegraph Company for damages under Michigan law because of failure to deliver on time a message filed for transmission to Kansas City. The Telegraph Company attacked the constitutionality of the Michigan statute of 1893, which permits an action for damages against the telegraph companies for failure to deliver messages promptly as an interference with interstate commerce. This statute was upheld by the decision of the United States Supreme Court.

The first decision written by Justice Hughes was handed down on this date. This affirmed a decision of the United States Circuit Court for the District of Massachusetts, which held insufficient three counts on an indictment against Frank H. Mason, formerly clerk for the Federal Court of the District of Massachusetts on the charge of embezzlement. Mason was indicted in 1909 on the charge of embezzling approximately \$1000, covering a period of about three years' service. The money was paid him as fees and emoluments and the amount alleged to have been retained unlawfully was in excess of the compensation he was entitled to take to meet expenses and to pay himself for his services. The trial court held that under the law regulating the compensation of clerks of the Federal courts the title to the money received by Mason did not vest in the United States immediately upon the receipt of it by the clerk. In reviewing the case Justice Hughes held that not until after the statement of account had been formally made by the court clerk was there any obligation to pay over to the government and that even then, if the clerk were found to be indebted, his relation was that of debtor and not of trustee. The decision of the Federal Court for the District of Massachusetts was unanimously affirmed. The conviction of W. S. Harlan and Robert Gallagher, and others in peonage cases in the United States District Court for the District of Florida were affirmed by the United States Supreme Court on November 28, in a decision by Justice Day.

COURT OF COMMERCE. The newly established

Court of Commerce created by Congress in 1910 was organized by the following appointments made by President Taft in December: Presiding Judge, to serve for five years, Martin A. Knapp, of New York, formerly chairman of the Interstate Commerce Commission; judges of the court, Robert W. Archbald, formerly United States District Judge of Pennsylvania, to serve four years; William H. Hunt of Montana, formerly Association Justice of the Customs Court, to serve for three years; Judge Arthur C. Denison of Michigan, formerly United States District Judge, to serve for two years, and Julian W. Mack, a lawyer of Chicago, to serve for one year.

#### CONGRESS

The Sixty-first Congress was distinguished by one special and two regular sessions. The first session, called on March 15, 1909, by President Taft, passed the Payne-Aldrich tariff bill, which was the special reason for its convening. In addition, several other important measures were enacted into law.

**SECOND SESSION.** The second session, which began on December 6, 1909, was notable for the large number of important measures passed. President Taft's first regular message was read on December 7. It proved to be a calm, judicial paper, from which discussion of many of the most important questions before Congress and the country were omitted for the reason stated by the President that he intended to send to Congress special messages relating to these subjects. A large part of the message was taken up by the report of the relations of the government to foreign nations, forming a résumé of the political history of the United States in its foreign relations during the current year. The President recommended the favorable action of Congress toward the reorganization of the State Department on modern lines. He commended to the consideration of both Houses the question of embodying in the statute the principles of the executive order upon which the efficiency of the consular service is wholly dependent. He declared that the most important question presented to the administration in his opinion is that of economy in expenditure and sufficiency in revenue. In the matter of the tariff, President Taft referred especially to the maximum and minimum clause and the tariff board, and expressed the opinion that no tariff war with foreign countries would result from the operation of the former as interpreted by him. The work of the tariff board, he said, would occupy perhaps two or three years, and he asked from Congress a continued appropriation equal to that already made for its prosecution. Among other matters discussed in the message were second class mail matter, postal savings banks, ship subsidy, the admission of New Mexico and Arizona as States, Alaska, the white slave traffic, and political contributions to elections. The time of Congress previous to the Christmas holidays was largely taken up by the consideration of the Ballinger-Pinchot controversy. This will be found discussed in the section *Administration* below.

Both branches of Congress reassembled after the holiday recess on January 4. On January 7, the President sent in his long expected special message recommending certain amendments to the interstate commerce and anti-trust laws. The President recommended the establishment of a United States Court of Commerce, to be

composed of five Federal circuit judges, to be given jurisdiction in a variety of cases arising under interstate commerce laws and having to do especially with the regulation of railroads. One of the most important sections of the message had to do with prohibiting railroads from acquiring stock or otherwise getting an interest in or control of competing lines.

The message contained other suggestions, some of them intended to give the Interstate Commerce Commission greater authority to protect trainmen in pursuit of their work by the use of improved appliances. The second half of the message dealt with the anti-trust law. The President made a deliberate and judicial analysis of the development of great corporations, the tendency towards monopoly and the aims and meaning of the Sherman Anti-Trust law. Mr. Taft proposed to allow the anti-trust law to remain as it is, but to do away with certain objections that have arisen through its interpretation. He suggested a method of granting Federal incorporation to good trusts in place of the method of examining the affairs of industrial corporations by the Department of Commerce and Labor. He stated that the Attorney-General had prepared a bill providing for such a scheme. This bill makes it the duty of the Commissioner of Corporations to examine into all the preliminaries in the case of their application, and after due inquiry, to issue a certificate of incorporation. It contains restrictions regarding stock issues in order to insure the sound and conservative character of every certificate holder. Each company thus incorporated must file an annual report covering specific matters. There was a clause in the bill which authorized any Federal corporation to hold a controlling interest in the stock of kindred State corporations, under certain restrictions.

The railroad bill, which became a law on June 18, differed in many ways from the bill that was originally introduced. See *Congressional Legislation* below and *RAILWAYS*. The passage of this bill through Congress was attended by some of the most notable debates heard in Congress in recent years. The chief opponent of the bill as it originally stood was Senator Cummins of Iowa, and by his efforts, seconded by the efforts of others of the progressive Senators, he was able to have included in the final bill certain features which met with strong opposition among the more conservative Senators. The insurgents, in combination with the Democrats, on May 2 struck out the sections relating to traffic agreements and mergers. The regulars were obliged to adopt, in addition, a drastic prohibition against a greater charge for a short than for a long haul and a clause bringing telephone and telegraph companies within the scope of the act. The bill finally passed the Senate on June 3, by a vote of 50 to 12, the opposition being solidly Democratic. The House bill had already been passed on May 10, and the measures were at once brought to conference. In spite of the efforts of the House managers of the bill, the stock and bond regulation provision was omitted by the conferees. No physical valuation clause could be made satisfactory to the Senate conferees, and this, too, was dropped from the bill. The commission was authorized to investigate alleged stock watering and the like as a substitute for the original demand. The wording of the House bill was



Willis Van Devanter	Horace Harrison Lurton	Charles Evans Hughes	Joseph Rucker Lamar
Oliver Wendell Holmes	John Marshall Harlan	Edward Douglass White (Chief Justice)	Joseph McKenna
			William R. Day

UNITED STATES SUPREME COURT

34

adopted for a long and short haul proposition, with an addition by the conferees prohibiting railroad carriers that have lowered their rates in competition with a water route from increasing these rates later unless the Interstate Commerce Commission considers conditions to have changed. The provision in the House bill that the circuit judges should form the Commerce Court instead of the judges of the Circuit Court of Appeals, as the Senate bill had provided, was retained. See **RAILWAYS**.

Several days after the President's message on the amendments of the interstate commerce and anti-trust laws had been received, he forwarded a message on conservation, recommending legislation. The laws passed in accordance with these recommendations will be found in the section *Congressional Legislation* below and in the article **CONSERVATION**.

On March 5, the postal savings bank bill, the first of the administration's measures to reach a vote, was passed in the Senate. This followed a sharp debate in which the chief feature was the opposition to the bill on the part of the Republican insurgents, led by Senators Cummins and Dolliver. The chief provision of the bill to which they were opposed was that which permitted investment of the deposits in the outstanding \$730,000,000 of 2 per cent. bonds now mainly held by national banks as a basis for circulating notes. This investment was favored by the President. Senator Dolliver asserted that such investment was intended to relieve the banks and clear the way for the establishment of a central bank of issue. The provision was warmly defended by Senator Root, who held that without investment in government securities the bill would be unconstitutional. An amendment introduced by Senator Smoot, supported by the regular Republicans, empowered the President to withdraw the deposited funds from local banks for investment in government securities in time of war or when such action is demanded for the country's welfare and the national credit. An amendment to this, offered by Senator Cummins, granting this power only in time of war, was lost by a vote of 18 to 40, while an amendment offered by Senator Borah restricting such investments to securities yielding at least  $2\frac{1}{4}$  per cent. was adopted by a vote of 49 to 11. The amendment of Senator Smoot was then adopted by a vote of 46 to 24, and the bill was passed, 50 to 22, all the Republican Senators, and one Democrat, Senator Chamberlain of Oregon, voting for it. The restriction contained in the amendment of Senator Borah prevented investment by the government in the \$730,000,000 of 2 per cent. bonds mentioned above. For a general discussion of the bill see **POSTAL SAVINGS BANKS**.

**CHANGE IN HOUSE RULES.** One of the most momentous incidents in the history of Congress in recent years was the change in the rules, brought about on March 18, by an alliance between the insurgent Republicans and the Democrats. This was the culmination of an effort, extending over a considerable period of time, to bring about certain changes, especially in the arrangement of the Committee on Rules, which determines the parliamentary procedure of the House. Speaker Cannon had always resisted any effort for the change, chiefly, it was alleged by the insurgents, because he wished to continue to hold an almost absolute control over the course of legislation. The Committee on Rules is one

of the principal agencies through which the House conducts its business and under the system that had existed for many years, the Speaker himself was chairman of the Rules Committee. His associates were Mr. Dalzell of Pennsylvania, Mr. Smith of Iowa, Mr. Clark of Missouri, leader of the Democratic minority, and Mr. Fitzgerald of New York, Democrat. The struggle which culminated in the victory of the insurgents and Democrats was the final achievement of a struggle which actually began in 1909. The incident began in what seemed to be a trivial episode. Mr. Crumpacker of Indiana, chairman of the committee of the census, asked unanimous consent to bring forward a small amendment to the census law against which there could be no opposition. The technical question arose whether he was in order by reason of certain rules of the House as to the calendar. Mr. Crumpacker took the ground that since the census is amendatory in the constitution, his motion relating to it was one of privilege, and therefore superior to the rules. His point was sustained after a protracted debate. Immediately after the decision on this point Mr. Norris of Nebraska, a well known insurgent, asked for recognition. On the Speaker's inquiry for what purpose he desired recognition, he stated that he had a resolution involving a point of constitutional privilege. Upon this assertion he was recognized by the Speaker. When the resolution was read it proved to be one demanding a new committee on rules, much larger than the committee as it then existed, to be elected by the majority and minority members of the House with the distinct proviso that the Speaker should not be a member. Mr. Norris's motion was made on Thursday, and it resulted in a parliamentary battle which lasted throughout that night and was continued through the following day. This struggle was signalized by the efforts of the insurgents and Democrats to bring about a vote, and the attempts of the Speaker to postpone the vote until he should be able to command the votes of many of the Representatives who were absent and who, he was certain, would vote against the resolution. He was unable to postpone the vote, however, any longer than Saturday afternoon. He then declared his readiness to rule upon the question, and in a carefully prepared opinion, he announced his decision that the resolution was out of order and could not be entertained. On the vote which immediately followed as to whether the decision of the chair should be sustained or not, thirty-five Republican insurgents voted with the entire body of Democrats and the decision of the Speaker was overruled. A resolution was at once offered declaring the office of the Speaker vacant, but on this vote the Republican Representatives broke away from the Democratic minority in such numbers as to defeat the resolution and the Speaker remained in possession of the chair. Less than a quarter of the insurgents allowed themselves to be counted in favor of deposing Mr. Cannon.

After their success in bringing about a revision of the personnel of the Committee on Rules, the insurgent Republicans decided that they would not insist that one of their group be made a member of the new Committee on Rules. On March 23 a caucus was held to select the party's six members of the new committee. At this meeting the insurgent Republicans were

present as well as the regulars. Speaker Cannon was also present, but took no part in the proceedings. Representative Tawney, who had been closely associated with the Speaker, chose six names, which, it was understood, had been selected by the regular Republicans in conference. The list was withdrawn because objection was made to a "slate" being made in advance. The Representatives whose names appeared on the list were, however, chosen Republican members of the Committee on Rules. They were the following: Walter I. Smith of Iowa, John Dalzell of Pennsylvania, George P. Lawrence of Massachusetts, J. Sloat Fassett of New York, Sylvester C. Smith of California, and Henry S. Boutell of Illinois. Representative Dalzell, and Walter I. Smith were members of the old committee. The other members of the committee had already been prominent in the regular majority. Late on the following day the Democrats at their caucus selected the following as the Democratic Representatives on the Committee: Champ Clark of Missouri, Oscar Underwood of Alabama, Lincoln Dixon of Indiana, and John F. Fitzgerald of New York. Of these Mr. Fitzgerald was a member of the old committee. By unanimous vote on May 25 the House elected the ten members named above and the committee elected Mr. Dalzell to be its chairman.

**MISCELLANEOUS.** On April 19 it became known by the publication of a letter addressed by him to the governor of Rhode Island, that Senator Aldrich would not be a candidate for reelection. At the same time it was announced by Senator Hale that he would retire at the end of the present session. These Senators in point of service were among the oldest in the Senate and were the most powerful members of that body in shaping and passing legislation. Senator Aldrich was chairman of the Finance Committee and he had a chief share in the passage of the Payne-Aldrich tariff bill. He was also a member of other important committees of the Senate. Senator Hale was chairman of the Committee on Appropriations, which is second only to the Finance Committee in importance and power. He was also a prominent member of the Naval Committee, of which he was at one time chairman. Strong opposition to his re-election had developed, and to this was, in some degree, attributed his decision. These two Senators held the first two places in what is commonly called the "steering committee" which determines the programme of legislation. Senator Aldrich stated that his retirement was due to the condition of his health.

On May 26th there was a sharp debate in the House concerning the customary appropriation of \$25,000 for the President's traveling expenses. As the appropriations for the fiscal year had been exhausted, the Committee on Appropriations proposed that the appropriations for the coming year be made "immediately available." On a point or order raised by Mr. Macon, a Democrat of Arkansas, these words were stricken out. Thereupon Representative Tawney, chairman of the committee, attacked the Democratic representatives, charging that they had urged the President to accept their invitation to visit their States during his trip to the South and had then turned about and criticised him in the House for spending money in traveling. Mr. Tawney charged also that the President had been charged board at one place

in the South. He then read a list of 36 Democratic Senators and Representatives who had invited the President to visit their States, and of Southern Representatives who had been guests of the President on his special train. He admitted that this list had been obtained from the President's secretary. Mr. Tawney's charges were denied by Southern Representatives, and on the following day a letter from the President was made public in which he denied that he had received any inhospitality in the South, and said that the intimation or suggestion that the acceptance by Congressmen of the President's invitation to travel on the train with him in their respective districts or States was a reason why they should not vote their free opinion of such an appropriation, was to him a most painful one. He declared that a suggested reflection upon southern hospitality was especially distressing to him and said that the charge that somewhere in the South he had been charged board had no foundation in fact. On the same day Mr. Carpenter, President Taft's secretary, resigned and was at once appointed Minister to Morocco.

On June 16 a bill providing for the admission of New Mexico and Arizona as separate States was passed in the Senate by a unanimous vote and on the 18th the House accepted the bill, which then became a law. The bill requires that the new constitutions of the two States be ratified by Congress and approved by the President. Constitutional conventions must be held and the constitutions submitted to the people before the act shall take effect.

By a vote of 152 to 105 the House had insisted upon an amendment to the Sundry Civil Appropriation bill, providing that no part of the money given to be used for the enforcement of the Sherman Anti-Trust law should be expended in prosecuting combinations of workmen. This attempt to exempt labor unions from the operation of the law in case of a boycott was not approved by President Taft. A telegram protesting against his opposition was sent to him by the Locomotive Engineers and Firemen's Brotherhood, then in convention. The President replied by telegraph as follows: "The Supreme Court decided that the boycott is in violation of the Sherman Anti-Trust law and this proposal is an attempt to withhold the means of prosecuting that law when it is violated by a particular class to be made privileged. I am entirely opposed to such class legislation. If it was proposed to amend the language of the Sherman Anti-Trust law itself so as somewhat to narrow its scope, that would present a proper question for consideration but so long as the present Anti-Trust law remains upon the statute books, an attempt to modify its enforcement so as to render immune any particular class of citizens, employers or employes, is improper legislation, and in my judgment ought to be opposed by your Brotherhood. A laboring man and a trade unionist, if I understand him, asks only equality before the law. Class legislation and unequal privilege, though expressly in favor, will, in the end, work no benefit to him or society." Largely as a result of the disapproval of the President, the House on June 23 reversed its action and voted 138 to 130 to agree with the Senate in excluding exemption.

The River and Harbor bill, which appropriates \$52,000,000, was not signed by the

President until June 25. He then sent to Congress a message severely criticising the measure and saying that at one time he had reached the conclusion that it was his duty to interpose his veto. He had afterwards changed his opinion because the bill had many good features, and the failure of it would embarrass the constructing engineers and cause loss. He emphatically expressed his disapproval of the piecemeal policy pursued with respect to the appropriations for many of the projects, several of which ought to be abandoned, and urged that there should be reform in the preparation of such bill, saying that a failure to adopt a reform would, the next time, justify a veto.

The satisfaction felt by the President in regard to the legislation passed by Congress is shown by the following statement on June 23. "I am elated at the legislation which has been enacted by this Congress. It has fulfilled the pledges of the party. It is a great satisfaction to me that we have accomplished so much. It has been the custom of the past to try and fulfill party pledges during the term of the President elected; we have secured what we set out to get during the first regular session of Congress. We now have the best railroad regulation law we ever had. The provisions for the supervision of capitalization were omitted but this does not mean that they have been abandoned. Renewed effort to enact them will be made at the next session. I think the party in power has enacted legislation which will inure greatly to its benefit. It has kept its contract. Congress, which is now closing its first regular session, has done what it promised the people to do, and the Republican party has a good record to take to the people in the coming election."

A measure of considerable interest, though not of the first importance, was that providing for the National Glacier Park in Northern Montana.

The incidents connected with the charges against Senator Lorimer will be found discussed under Illinois, and the incidents resulting from the charges made by Senator Gore in the last days of the session that attempts had been made to bribe him, will be found in the article OKLAHOMA.

**APPROPRIATIONS.** The appropriations made in the second session of the Sixty-first Congress amounted to \$721,313,900, including \$37,885,000 for the Panama Canal. The largest appropriations were for the Interior Department, \$214,754,278; for the Navy Department, \$119,596,870, with an additional appropriation of \$14,790,122 for building new vessels. The appropriations for the War Department were \$122,322,178; for river and harbor improvements, \$49,390,541. For the Post Office Department the appropriations amounted to \$2,085,005, with \$10,634,022 additional for deficiency in postal revenues; for the Department of Agriculture, \$17,821,836; for the Department of Commerce and Labor, \$14,169,969, and for the Department of Justice, \$9,648,237.

**THIRD SESSION.** The Sixty-first Congress assembled for its third or short session on December 5, 1910. During the summer months between the adjournment of the second session and the opening of the third, the Senate lost by death three of its most prominent members. These were Samuel D. McEnery of Louisiana (q. v.); Senator John W. Daniel of Virginia (q. v.); and Senator Jonathan P. Dolliver of Iowa

(q. v.). Senators Daniel and McEnery were among the older members of the Senate, and for years had been prominent in that body. Senator Dolliver in his comparatively brief service had become known as one of the strongest debaters and most efficient workers in the Senate. At the beginning of his service he had been found with the more conservative branch of the Chamber, but for several years previous to his death he had become identified with the aggressive insurgent group and was found in the thick of every fight in which this wing took part, notably in opposition to certain measures of the tariff bill of 1909, and to certain portions of the railway bill passed in 1910.

President Taft's second regular message to Congress was received on December 6. This followed in general plan his first message in that it contained a résumé of the foreign relations of the United States and continued recommendations for economy in administering the affairs of the government. The President outlined the work of the Tariff Board and urged the necessity for its continuation. The President referred with gratification to the outcome of the arbitration of the fisheries dispute between the United States and Great Britain submitted to and decided by The Hague Tribunal (see INTERNATIONAL ARBITRATION).

Perhaps the most notable utterances contained in the message from an international standpoint were concerned with the proposed peace commission provided for at the first session of the Sixty-first Congress. This measure authorized the appointment by the President of a commission of five members to consider the expediency of utilizing existing international agencies for the purpose of limiting the armaments of the nations of the world by international agreement and of constituting of the combined navies of the world an international force for the preservation of international peace, and to consider and report upon any other means to diminish the expenditures of government for military purposes and lessen the probabilities of war. The President stated that he had not yet made appointments to this commission because he had invited and was awaiting the expression of foreign governments as to their willingness to coöperate with the United States in the appointment of similar commissions and representatives who would meet with the United States Commissioners, and by joint action seek to make their work effective. The President urged the fortification of the Panama Canal and declared that its fortification was necessary to the adequate policing and protection of the canal. Many of his recommendations had to do with reform in judicial procedure. He renewed his recommendation made in his last annual message in view of the passing of a law to regulate the issuing of injunctions in equity without notice, in accordance with the best practices now in vogue in the courts of the United States.

The President recommended that the coal deposits of the government be leased after advertising for competitive bids for terms not exceeding fifty years with a minimum rental and royalties upon the coal mine to be adjusted every ten or twelve years. He also advocated the lease of water sites and he earnestly urged general conservation legislation. Among the other recommendations were amendments for the

immigration law and for further legislation relating to safety appliances on railroads, the valuation of railroads and for the prevention of fraudulent bills of lading. On December 7 the Ballinger-Pinchot investigating committee made its report, the majority of the committee completely exonerating the Secretary of the Interior (see ADMINISTRATION below). The Indian Appropriation bill and the River and Harbor Appropriation bill passed the House before the Christmas holidays, and an Urgent Deficiency bill of \$1,000,000 was passed by both Houses of Congress.

Several important bills were introduced before Congress adjourned over the holidays, but no important action was taken in regard to them.

**CONGRESSIONAL LEGISLATION.** The session of Congress from December, 1909, to July, 1910, passed over 300 public acts and 50 public resolutions. Many of these were, of course, the routine appropriation bills or local measures. There were, however, about 50 important measures passed exclusive of these, and of this number several were the most noteworthy passed in any recent session of Congress. They included nearly every article in the President's legislative programme outlined in his message in December, 1909. Of the measures which he favored, practically the only ones to fail of passage were the shipping subsidy bill, the bill for the restriction of the use of injunction in labor disputes and the bill for the creation of a national board of health. Although they were of a nature which did not come as prominently in the public eye as some others, amendments to the Federal bankruptcy law were of great importance. They were the first made since 1903. Twelve sections of the act were amended. The most important change vests corporations other than municipal, railroad, insurance or banking with the privilege of voluntary bankruptcy.

The desire of the President for more definite legislative authority for the withdrawal of public lands from settlement resulted in the passage during the last days of the session of an act authorizing him "at any time in his discretion to temporarily withdraw from settlement, location, sale or entry, any of the public lands of the United States \* \* \* and reserve the same for water power sites, irrigation and other public purposes." The withdrawal remains effective until revoked by the President or by Congress, but the lands withdrawn are open to exploration and to the purchase of minerals other than coal, oil, gas and phosphates. Withdrawals do not affect bona fide occupants or claimants who are diligently prosecuting work on such lands at the time of the passage of the act, and no additions to forest reserves are to be made in Oregon, Washington, Idaho, Montana, Colorado or Wyoming, except by act of Congress. Another act authorized the use of certificates of indebtedness to the amount of \$20,000,000 for the purpose of completing existing reclamation projects.

Several important measures relating to the punishment of crimes were passed. Among these the most conspicuous was that relating to the white slave evil. One measure amended the immigration act so as to exclude not only prostitutes, but also all persons supported wholly or partly from their earnings. The commissioner-general of immigration is instructed

to gather information regarding the procurement of alien white slaves, to exercise supervision over them and to obtain their statements. An enactment designed to prevent the escape on the plea of immunity of persons giving testimony was passed. This declares that the provision hitherto providing that "no pleading of a party, nor any discovery of evidence from a party or witness by means of a judicial proceeding in this or any foreign country, shall be given in evidence or in any manner used against him or his property or estate, in any court of the United States, in any criminal proceeding, or for the enforcement of any penalty of forfeiture" has been struck from the statutes. Important measures were passed providing for improved methods of caring for prisoners in the Federal prisons and allowing parole under certain conditions. After having been before Congress for several years and failed of passage, a measure was enacted requiring from political committees and from individuals who contribute \$50 or more toward the election of Representatives in Congress, not through political committees, sworn statements of the following items: (1) names and addresses of contributors of \$100 or more; (2) total of contributions in amounts less than \$100; (3) total of all contributions; (4) names and addresses of persons to whom \$10 or more is disbursed "and the purpose thereof"; (5) total disbursements of sums less than \$10; (6) total of disbursements. These statements are to be filed with the clerk of the House of Representatives. The act applies only to the national committees or to committees acting in two or more States and there is no publicity of the items until after election.

Several important changes were made in the laws relating to the seal fisheries in Alaska. The administration of these fisheries is transferred from the Secretary of the Treasury to the Secretary of Commerce and Labor. The latter is granted authority to permit the killing on the Pribiloff Islands of a certain number of male seals, the number to be fixed by the Secretary of Commerce and Labor and the skins to be sold for the benefit of the United States treasury. This provision is due to the opinion of some of the government experts that the surplus of male seals is causing a diminution of the herd. Other changes in the law extend the boundaries of the government reservation so as to cover all the Pribiloff Islands instead of merely a few of the islands and to establish a close time season for the whole year instead of a few months, unless otherwise ordered by the Secretary of Commerce and Labor. The sections authorizing the lease of two of the islands are repealed, but the Secretary is authorized to purchase the fixtures of the former lessee. The prohibition of the killing of seals by American citizens on high seas is extended to the entire Pacific Ocean. Formerly it was limited to that portion of the ocean north of 35° N. latitude. Undoubtedly the most important measure before Congress and the one which attracted the widest popular attention and discussion was that which amended the interstate commerce laws of 1887, 1889 and 1906. The changes recommended by President Taft will be found noted in the paragraphs above. Of the measure as finally passed, the following are the chief provisions:

A commerce court was created to consist of five circuit judges, who are to be appointed in the first instance by the President. The terms of office are so arranged that one judge will retire from the court annually, his place being filled by some circuit judge to be designated by the chief justice of the Supreme Court. After 1914 no reassignment of a judge to the commerce court shall be made until a year has elapsed after the close of his former service. The judge senior in designation is to act as presiding judge. This court is to have the jurisdiction now possessed by the circuit courts of the United States over all cases for the enforcement of the orders of the Interstate Commerce Commission; all cases brought to enjoin or suspend wholly or in part any order of the Interstate Commerce Commission; such cases as by section 3 of the act regulating commerce in foreign nations and among the States are authorized to be maintained in a certain court of the United States; all such mandamus proceedings as under the proceedings of section 20 or section 23, as amended, are authorized to be maintained in the Circuit Court of the United States. The jurisdiction of the Commerce Court over these cases is exclusive. The regular sessions of the court are to be held in Washington and the jurisdiction is invoked by petition served by the marshal. Final judgments may be reviewed by the Supreme Court on appeals taken within sixty days after entry of the decree. The Attorney-General represents the interests of the government and may intervene in any private suit in the Commerce Court in which the public interests are involved. The Interstate Commerce Commission may be represented by counsel and the Attorney-General may employ special counsel.

Other amendments to the interstate commerce acts extend the jurisdiction of the commission to telegraph, telephone and cable companies, whether wire or wireless, engaged in the transmission of messages otherwise than wholly within a single State.

The long and short haul clause of the measure regulating rates for carrying freight by the railroads was a subject of much discussion in Congress. The provision forbids the charging or receiving of "any greater compensation in the aggregate for the transportation of passengers or of like kind of property for the shorter than for the longer distance over the same line of route in the same direction, the shorter being included within the longer distance." A new proviso forbids the commission to order any change in rates for violation of the section within six months following the passage of the act. There was a further provision that when railway and water carriers compete and railway rates have been reduced, they shall not thereafter be increased unless after hearing "it shall be found that such proposed increase rests upon changed conditions other than the elimination of water competition."

An important change in the law permits the commission to act on its own initiative on most matters within its province. Immediately upon receiving a new schedule of rates, the commission may suspend them for a period as long as 120 days from the time they would otherwise go into effect and if a hearing on the rate is pending and uncompleted, may later order a further suspension of not exceeding six months.

The burden of proof is on the carrier to show the justice and reasonableness of any rate increased since January 1, 1910. The commission is also empowered under restrictions specified in the acts to initiate through rates and joint classifications when the carriers neglect to do so. For a further discussion of these amendments as relating to railroads, see the article RAILWAYS.

In response to a general desire among those interested in mines and mining for the establishment of such a bureau, a bureau of mines was created in the department of the interior. This bureau was given the supervision of investigations of structural material and the duty of testing fuels, and it receives an appropriation of \$400,000 to enable it to study and report upon the causes of mine explosions. The bureau is to have no right or authority in connection with the inspection or supervision of mines or metallurgical plants in any state, but may merely investigate methods and appliances and report the results.

Several important measures relating to navigation were passed. Motor boats were brought within the field of maritime legislation. They are classified in three grades, by their length; and the lights, bells, whistles and life preservers for the different sized boats are prescribed by Congress. The lighthouse service was reorganized and made a bureau in the department of Commerce and Labor.

One of the most noteworthy achievements of the year was the adoption of the postal savings bank bill. A general discussion of this act will be found in the article POSTAL SAVINGS BANKS. Three important changes were made in the postal laws. One of these relieves the department of the duty of returning registry receipts, unless the sender requests such returns. Another relieves postmasters issuing money orders from the necessity of sending a note of advice to the offices on which they are drawn. The third permits the postmaster general to prescribe a period other than thirty days within which undelivered letters shall be returned to the sender.

The admission of Arizona and New Mexico as States will eliminate all Territories within the contiguous territory of the United States. The statutes regulating the admission of these two States are similar to those of a few years ago admitting Oklahoma and Utah.

Among the miscellaneous measures passed were the following: A commission was appointed to investigate the methods of reducing the expenses of the Federal government; to promote universal peace; to investigate the Department of the Interior, and the Bureau of Forestry; to investigate the subject of employers' liability and workmen's compensation for injuries; to advise the proper officials as to the location and care of monuments and other works of art to be erected in the streets and squares of the District of Columbia.

The President was authorized to invite the International Congress on Refrigeration to meet in this country and was empowered to request the governors of the several States to appoint committees to cooperate in making preparation for the Fifteenth International Congress on Hygiene and Demography, which is to meet in the United States in 1911-12. An appropriation was made for defraying the cost of raising the battleship *Maine*, and of in-

tering the bodies of the sailors there found in the Arlington National Cemetery. The mast of the destroyed vessel is to be erected in the cemetery as a monument to the memory of those who lost their lives at the time of the destruction. The employers' liability law of 1908 was amended so that action may be brought either in a State or Federal court in the district either where the defendant resides or where the cause of action arose, or where the defendant does business at the time of the commencing of the action. Any action brought in the State court is not to be removed to the Federal court. Rights of action under the act and the amendments survive to personal representatives for the benefit of surviving husband,

wife, children, parents or dependent next of kin.

The method of determining the heirs of deceased Indians in order to dispose of their allotments is defined in much detail.

An insecticide act was passed which took effect January 1, 1911. This supplements and follows the pure food and drugs act by forbidding the manufacture, transportation or sale, either in the territories or the District of Columbia or the extra-territorial possessions, or the transportation in interstate commerce of adulterated or misbranded Paris green, lead arsenate or other insecticides or fungicides. The duty of enforcing this act is imposed upon the Secretary of Agriculture.

CONGRESSIONAL REPRESENTATION. The State representatives in the 61st Congress were as follows:  
[Republicans in roman; Democrats in italic.]

## ALABAMA.

## SENATORS.

*John H. Bankhead.*†

*Joseph F. Johnston.*‡

## REPRESENTATIVES.

[Democrats, 9.]

*George W. Taylor.*  
*Stanley H. Dent, jr.*  
*Henry D. Clayton.*

*William B. Craig.*  
*J. Thomas Heflin.*  
*Richmond P. Hobson.*

*John L. Burnett.*  
*William Richardson.*  
*Oscar W. Underwood.*

## ARKANSAS.

## SENATORS.

*James P. Clarke.*‡

*Jeff Davis.*†

## REPRESENTATIVES.

[Democrats, 7.]

*Robert B. Macon.*  
*William A. Oldfield.*  
*John C. Floyd.*

*Ben Cravens.*  
*Charles C. Reid.*

*Joseph T. Robinson.*  
*R. Minor Wallace.*

## CALIFORNIA.

## SENATORS.

*George C. Perkins.*‡

*Frank P. Flint.\**

## REPRESENTATIVES.

[Republicans, 8.]

*William F. Englebright.*  
*Duncan E. McKinlay.*  
*Joseph R. Knowland.*

*Julius Kahn.*  
*Everis A. Hayes.*  
*James C. Needham.*

*James McLachlan.*  
*Sylvester C. Smith.*

## COLORADO.

## SENATORS.

*Simon Guggenheim.*†

*Charles J. Hughes, Jr.*‡

## REPRESENTATIVES.

[Democrats, 3.]

At large—*Edward T. Taylor.*

*Atterson W. Rucker.*

*John A. Martin.*

## CONNECTICUT.

## SENATORS.

*Morgan G. Bulkley.\**

*Frank B. Brandegee.*‡

## REPRESENTATIVES.

[Republicans, 5.]

At large—*John Q. Tilson.*

*E. Stevens Henry.*  
*Nehemiah D. Sperry.*

*Edwin W. Higgins.*

*Ebenezer J. Hill.*

## DELAWARE.

## SENATORS.

*Henry A. du Pont.\**

*Harry A. Richardson.*†

## REPRESENTATIVE.

At large—*William H. Heald.*

## FLORIDA.

## SENATORS.

*James P. Taliaferro.\**

*Duncan U. Fletcher.*‡

## REPRESENTATIVES.

[Democrats, 3.]

*Stephen M. Sparkman.*

*Frank Clark.*

*Dannette H. Mays.*

## GEORGIA.

## SENATORS.

*Augustus O. Bacon.*†

*Joseph M. Terrell.*‡

## REPRESENTATIVES.

[Democrats, 11.]

*Charles G. Edwards.*  
*Seaborn Anderson Koddenberry.*  
*Wudley M. Hughes.*

*William C. Adamson.*  
*Leonidas F. Livingston.*  
*Charles L. Bartlett.*  
*Gordon Lee.*

*William M. Howard.*  
*Thomas M. Bell.*  
*Thos. W. Hardwick.*  
*Wm. G. Brantley.*

## IDAHO.

## SENATORS.

*Weldon B. Heyburn.*‡

*William E. Borah.*†

## REPRESENTATIVE.

At large—*Thomas R. Hamer.*

\* Term expires 1911.

† Term expires 1913.

‡ Term expires 1915.

‡ Temporary appointment.

## ILLINOIS.

## SENATORS.

Shelby M. Cullom.†

William Lorimer.‡

## REPRESENTATIVES.

[Democrats, 6; Republicans, 19.]

Martin B. Madden.  
James R. Mann.  
William W. Wilson.  
James T. McDermott.  
Adolph J. Sabath.  
William J. Moxley.  
Frederick Lundin.  
Thomas Gallagher.  
Henry S. Boutell.

George E. Foss.  
Howard M. Snapp.  
Charles E. Fuller.  
Frank O. Lowden.  
James McKinney.  
George W. Prince.  
Joseph V. Graff.  
John A. Sterling.  
Joseph G. Cannon.

William B. McKinley.  
Henry T. Rainey.  
James M. Graham.  
William A. Rodenberg.  
Martin D. Foster.  
Pleasant T. Chapman.  
Napoleon B. Thistlewood.

## INDIANA.

## SENATORS.

Albert J. Beveridge.\*

Benjamin F. Shively.‡

## REPRESENTATIVES.

[Democrats, 11; Republicans, 2.]

John W. Boehne.  
William A. Cullop.  
William E. Cox.  
Lincoln Dixon.  
Ralph W. Moss.

William O. Barnard.  
Charles A. Korbly.  
John A. M. Adair.  
Martin A. Morrison.  
Edgar D. Crumpacker.

George W. Rauch.  
Cyrus Cline.  
Henry A. Barnhart.

## IOWA.

## SENATORS.

Lafayette Young.‡

Albert B. Cummins.‡

## REPRESENTATIVES.

[Democrats, 1; Republicans, 10.]

Charles A. Kennedy.  
Albert F. Dawson.  
Charles E. Pickett.  
Gilbert N. Haugen.

James W. Good.  
Nathan E. Kendall.  
John A. T. Hull.  
William D. Jamieson.

Walter I. Smith.  
Frank P. Woods.  
Elbert H. Hubbard.

## KANSAS.

## SENATORS.

Charles Curtis.†

Joseph L. Bristow.‡

## REPRESENTATIVES.

[Republicans, 8.]

Daniel R. Anthony, jr.  
Charles F. Scott.  
Philip P. Campbell.

James M. Miller.  
William A. Calderhead.

William A. Reeder.  
Edmond H. Madison.  
Victor Murdock.

## KENTUCKY.

## SENATORS.

Thomas H. Paynter.†

William O. Bradley.‡

## REPRESENTATIVES.

[Democrats, 8; Republicans, 3.]

Ollie M. James.  
Augustus O. Stanley.  
Robert Y. Thomas, jr.  
Ben Johnson.

Swagar Sherley.  
Joseph L. Rhinock.  
J. Campbell Cantrill.  
Harvey Helm.

Joseph B. Bennett.  
John W. Langley.  
Don C. Edwards.

## LOUISIANA.

## SENATORS.

T. B. Thornton.‡

Murphy J. Foster.†

## REPRESENTATIVES.

[Democrats, 7.]

Albert Estopinal.  
H. Garland Dupre.  
Robert F. Broussard.

John T. Watkins.  
Joseph E. Ransdell.

Robert C. Wickliffe.  
Arsene P. Pujo.

## MAINE.

## SENATORS.

Eugene Hale.\*

William P. Frye.†

## REPRESENTATIVES.

[Republicans, 4.]

Amos L. Allen.  
John P. Swasey.

Edwin C. Burleigh.

Frank E. Guernsey.

## MARYLAND.

## SENATORS.

Isidor Kayner.\*

John Walter Smith.‡

## REPRESENTATIVES.

[Democrats, 3; Republicans, 3.]

J. Harry Covington.  
J. Fred'k C. Talbott.

John Kronmiller.  
John Gill, jr.

Sydney E. Mudd.  
George A. Pearre.

## MASSACHUSETTS.

## SENATORS.

Henry Cabot Lodge.\*

W. Murray Crane.†

## REPRESENTATIVES.

[Democrats, 5; Republicans, 9.]

George P. Lawrence.  
Frederick H. Gillett.  
Charles G. Washburn.  
John J. Mitchell.  
Butler Ames.

Augustus P. Gardner.  
Ernest W. Roberts.  
Samuel W. McCall.  
John A. Keliher.  
Joseph F. O'Connell.

Andrew J. Peters.  
John W. Weeks.  
William S. Greene.  
Eugene N. Foss.

## MICHIGAN.

## SENATORS.

Julius C. Burrows.\*

William Alden Smith.†

\* Term expires 1911.

† Term expires 1913.

‡ Term expires 1915.

¶ Temporary appointment.

## REPRESENTATIVES.

[Republicans, 12.]

Edwin Denby.  
Charles E. Townsend.  
Washington Gardner.  
Edward L. Hamilton.

Gerrit J. Diekema.  
Samuel W. Smith.  
Henry McMoran.  
Joseph W. Fordney.

Jas. C. McLaughlin.  
George A. Loud.  
Francis H. Dodds.  
H. Olin Young.

## MINNESOTA.

## SENATORS.

Knute Nelson.†

Moses E. Clapp.\*

## REPRESENTATIVES.

[Democrat, 1; Republicans, 8.]

James A. Tawney.  
Winfield S. Hammond.  
Charles R. Davis.

Frederick C. Stevens.  
Frank M. Nye.  
Charles A. Lindbergh.

Andrew J. Volstead.  
Clarence B. Miller.  
Halvor Steenerson.

## MISSISSIPPI.

## SENATORS.

Hernando D. Money.\*

Le Roy Percy.†

## REPRESENTATIVES.

[Democrats, 8.]

Ezekiel S. Candler, jr.  
Thomas Spight.  
Benj. G. Humphreys.

Thomas U. Sisson.  
Adam M. Byrd.  
Eaton J. Bowers.

William A. Dickson.  
James W. Collier.

## MISSOURI.

William J. Stone.†

William Warner.\*

## REPRESENTATIVES.

[Democrats, 10; Republicans, 6.]

James T. Lloyd.  
William W. Rucker.  
Joshua W. Alexander.  
Charles F. Booker.  
William P. Borland.  
Clement C. Dickinson.

Courtney W. Hamlin.  
Dorsey W. Shackelford.  
Champ Clark.  
Richard Bartholdt.  
Patrick F. Gill.  
Harry M. Coudrey.

Politte Elvins.  
Charles A. Crow.  
Charles H. Morgan.  
Arthur P. Murphy.

## MONTANA.

## SENATORS.

Thomas H. Carter.\*

Joseph M. Dixon.†

## REPRESENTATIVE.

At large—Charles N. Pray.

## NEBRASKA.

## SENATORS.

Elmer J. Burkett.\*

Norris Brown.†

## REPRESENTATIVES.

[Democrats, 3; Republicans, 3.]

John A. Maguire.  
Gilbert M. Hitchcock.

James P. Latta.  
Edmund H. Hinshaw.

George W. Norris.  
Moses P. Kinkaid.

## NEVADA.

## SENATORS.

Francis G. Newlands.†

George S. Nixon.\*

## REPRESENTATIVE.

At large—George A. Bartlett.

## NEW HAMPSHIRE.

## SENATORS.

Jacob H. Gallinger.†

Henry E. Burnham.†

## REPRESENTATIVES.

[Republicans, 2.]

Cyrus A. Sulloway.

Frank D. Currier.

## NEW JERSEY.

## SENATORS.

John Kean.\*

Frank O. Briggs.†

## REPRESENTATIVES.

[Democrats, 3; Republicans, 7.]

Henry C. Loudenslager.  
John J. Gardner.  
Benjamin F. Howell.  
Ira W. Wood.

Charles N. Fowler.  
William Hughes.  
Richard Wayne Parker.

William H. Wiley.  
Eugene F. Kinkaid.  
James A. Hamill.

## NEW YORK.

## SENATORS.

Chauncey M. Depew.\*

Elihu Root.†

## REPRESENTATIVES.

[Democrats, 12; Republicans, 25.]

William W. Cocks.  
George H. Lindsay.  
Otto G. Foelker.  
Charles B. Law.  
Richard Young.  
William M. Calder.  
John J. Fitzgerald.  
Daniel J. Riordan.  
Henry M. Goldfogle.  
William Sulzer.  
Charles V. Fornes.  
Michael F. Conry.  
Herbert Parsons.

William Willett, jr.  
J. Van Vechten Olcott.  
Francis B. Harrison.  
William S. Bennet.  
Joseph A. Goulden.  
John E. Andrus.  
Thomas W. Bradley.  
Hamilton Fish.  
William H. Draper.  
George N. Southwick.  
George W. Fairchild.  
Cyrus Durey.

George R. Malby.  
Charles S. Millington.  
Charles L. Knapp.  
Michael E. Driscoll.  
John W. Dwight.  
Serenio E. Payne.  
James S. Havens.  
J. Sloat Fassett.  
James S. Simmons.  
Daniel A. Driscoll.  
De Alva S. Alexander.  
Edward B. Vreeland.

## NORTH CAROLINA.

## SENATORS.

F. M. Simmons.†

Lee S. Overman.†

\* Term expires 1911.

† Term expires 1913.

† Term expires 1915.

## REPRESENTATIVES.

[Democrats, 7; Republicans, 3.]

*John H. Small.*  
*Claude Kitchin.*  
*Charles R. Thomas.*  
*Edward W. Pou.*

*John M. Morehead.*  
*Hannibal L. Godwin.*  
*Robert N. Page.*

*Charles H. Cowles.*  
*Edwin Y. Webb.*  
*John G. Grant.*

## NORTH DAKOTA.

## SENATORS.

Porter J. McCumber.\*

A. J. Gronna.†

## REPRESENTATIVES.

[Republicans, 2.]

At large—Louis B. Hanna.

## OHIO.

## SENATORS.

Charles Dick.\*

Theodore E. Burton.†

## REPRESENTATIVES.

[Democrats, 8; Republicans, 13.]

*Nicholas Longworth.*  
*Herman P. Goebel.*  
*James M. Cox.*  
*William E. Tou Velle.*  
*Timothy T. Ansberry.*  
*Matthew R. Denver.*  
*J. Warren Keifer.*  
*Ralph D. Cole.*

*Isaac R. Sherwood.*  
*Adna R. Johnson.*  
*Albert Douglas.*  
*Edward L. Taylor, jr.*  
*Carl C. Anderson.*  
*William G. Sharp.*  
*James Joyce.*

*David A. Hollingsworth.*  
*William A. Ashbrook.*  
*James Kennedy.*  
*W. Aubrey Thomas.*  
*Paul Howland.*  
*James H. Cassidy.*

## OKLAHOMA.

## SENATORS.

Thomas P. Gore.†

Robert L. Owen.†

## REPRESENTATIVES.

[Democrats, 2; Republicans, 3.]

*Bird McGuire.*  
*Dick T. Morgan.*

*Charles E. Creager.*  
*Charles D. Carter.*

*Scott Ferris.*

## OREGON.

## SENATORS.

Jonathan Bourne, jr.†

George E. Chamberlain.†

## REPRESENTATIVES.

[Republicans, 2.]

Willis C. Hawley.

William R. Ellis.

## PENNSYLVANIA.

## SENATORS.

Boies Penrose.†

George T. Oliver.\*

## REPRESENTATIVES.

[Democrats, 5; Republicans, 26; vacancy, 1.]

*Henry H. Bingham.*  
*Joel Cook.*  
*J. Hampton Moore.*  
*Reuben O. Moon.*

*Alfred B. Garner.*  
*John H. Rothermel.*  
*Charles C. Pratt.*  
*William B. Wilson.*  
*John G. McHenry.*  
*Benjamin K. Focht.*  
*Marlin E. Olmsted.*  
*John M. Reynolds.*  
*Daniel F. Lafean.*  
*Charles F. Barclay.*  
*George F. Huff.*

*Allen F. Cooper.*  
*John K. Tener.*  
*Arthur L. Bates.*  
*A. Mitchell Palmer.*  
*Jonathan N. Langham.*  
*Nelson P. Wheeler.*  
*William H. Graham.*  
*John Dalzell.*  
*James Francis Burke.*  
*Andrew J. Barchfeld.*

*George D. McCreary.*  
*Thomas S. Butler.*  
*Irving P. Wanger.*  
*William W. Griest.*  
*Thomas D. Nichols.*  
*Henry W. Palmer.*

## RHODE ISLAND.

## SENATORS.

Nelson W. Aldrich.\*

George P. Wetmore.†

## REPRESENTATIVES.

[Republicans, 2.]

William P. Sheffield.

Adin B. Capron.

## SOUTH CAROLINA.

## SENATORS.

Benjamin R. Tillman.†

Elhson D. Smith.†

## REPRESENTATIVES.

[Democrats, 7.]

*George S. Legare.*  
*James O. Patterson.*  
*Wyatt Aiken.*

*Joseph T. Johnson.*  
*David E. Finley.*  
*J. Edwin Ellerbe.*

*Asbury F. Lever.*

## SOUTH DAKOTA.

## SENATORS.

Robert J. Gamble.†

Coe I. Crawford.†

## REPRESENTATIVES.

[Republicans, 2.]

At large—Eben W. Martin, Charles H. Burke.

## TENNESSEE.

## SENATORS.

James B. Frasier.\*

Robert L. Taylor.†

## REPRESENTATIVES.

[Democrats, 8; Republicans, 2.]

*Z. D. Massey.*  
*Richard W. Austin.*  
*John A. Moon.*  
*Cordell Hull.*

*William C. Houston.*  
*Joseph W. Byrns.*  
*Lemuel P. Padgett.*  
*Thetus W. Sims.*

*Finis J. Garrett.*  
*George W. Gordon.*

## TEXAS.

## SENATORS.

Charles A. Culberson.\*

Joseph W. Basley.†

\* Term expires 1911.

† Term expires 1913.

† Term expires 1915.

*Morris Sheppard.*  
*Martin Dies.*  
*R. W. Lively.*  
*Choice B. Randell.*  
*Jack Beall.*  
*Rufus Hardy.*

REPRESENTATIVES.  
[Democrats, 16.]  
*A. W. Gregg.*  
*John M. Moore.*  
*George F. Burgess.*  
*Albert S. Burleson.*  
*Robert L. Henry.*  
*Oscar W. Gillespie.*

*John H. Stephens.*  
*James L. Slayden.*  
*John N. Garner.*  
*William R. Smith.*

## UTAH.

SENATORS.

Reed Smoot.†

George Sutherland.\*

REPRESENTATIVES.  
At large—Joseph Howell.

## VERMONT.

SENATORS.

William P. Dillingham.†

Carroll S. Page.\*

REPRESENTATIVES.  
[Republicans, 2.]

David J. Foster.

Frank Plumley.

## VIRGINIA.

SENATORS.

Claude A. Swanson.\*

Thomas S. Martin.†

REPRESENTATIVES.  
[Democrats, 9; Republican, 1.]

*William A. Jones.*  
*Harry L. Maynard.*  
*John Lamb.*  
*Robert Turnbull.*

*Edward W. Saunders.*  
*Carter Glass.*  
*James Hay.*  
*Charles C. Carlin.*

*C. Bascom Slemp.*  
*Henry D. Flood.*

## WASHINGTON.

SENATORS.

Samuel H. Piles.\*

Wesley L. Jones.†

REPRESENTATIVES.  
[Republicans, 3.]  
William W. McCredie.

William E. Humphrey.

Miles Poindexter.

## WEST VIRGINIA.

SENATORS.

Stephen B. Elkins.†

Nathan B. Scott.\*

REPRESENTATIVES.  
[Republicans, 5.]  
*Joseph Holt Gaines.*  
*Harry C. Woodyard.*

*William P. Hubbard.*  
*George C. Sturgiss.*

James A. Hugi s

## WISCONSIN.

SENATORS.

Robert M. La Follette.\*

Isaac Stephenson.†

REPRESENTATIVES.  
[Democrat, 1; Republicans, 10.]

*Henry A. Cooper.*  
*John M. Nelson.*  
*Arthur W. Kopp.*  
*William J. Cary.*

*William H. Stafford.*  
*Charles H. Weisse.*  
*John J. Esch.*  
*James H. Davidson.*

*Gustav Küstermann.*  
*Elmer A. Morse.*  
*Irvine L. Lenroot.*

## WYOMING.

SENATORS.

Francis E. Warren.†

Clarence D. Clark.\*

REPRESENTATIVE.  
At large—Frank W. Mondell.  
DELEGATES FROM TERRITORIES.

## ALASKA.

James Wickersham.

## ARIZONA.

Ralph H. Cameron.

## HAWAII.

J. Kuhio Kalanianaʻole.

## NEW MEXICO.

William H. Andrews.

## RESIDENT COMMISSIONERS.

## PHILIPPINE ISLANDS.

Benito Legarda. Manuel L. Quezon.

## PORTO RICO.

Tulio Larrinaga.

## CLASSIFICATION.

Senate:		House of Representatives:	
Republicans .....	59	Republicans .....	215
Democrats .....	32	Democrats .....	175
Vacancy .....	1	Vacancy .....	1
Total .....	92	Total .....	391
* Term expires 1911.	† Term expires 1913.	† Term expires 1915.	

## ADMINISTRATION

The record of President Taft's administration in 1910 in its larger issues will be found discussed in other portions of the article UNITED STATES and in the articles bearing on governmental activities as TRUSTS, CONSERVATION, RECLAMATION, PUBLIC LANDS, TARIFF, etc. The present paragraphs are intended only to sum up those events which do not properly find their place under any other title.

**BALLINGER-PINCHOT CONTROVERSY.** The vexing Ballinger-Pinchot controversy which at the end of the year 1909 was approaching a crisis, continued to fill a large place in public discussion during the greater part of the year 1910. The charges brought by L. R. Glavis, formerly Chief of the Field Division of the General Land Office, which were brought before President Taft in August, 1909, charged Mr. Ballinger, Secretary of the Interior, with improper conduct in connection with the patenting of coal lands in

Alaska, and especially of the so-called Cunningham claims. Mr. Glavis charged that Mr. Ballinger had used his influence in 1908 during a period from his resignation as Commissioner of the Land Office to the time when he was appointed Secretary of the Interior, to aid the patenting of these claims which, it was alleged by Mr. Glavis, were based on fraudulent and unlawful entries. These charges, together with an opinion upon them made by the attorney-general, were examined by President Taft and as a result he directed the discharge of Mr. Glavis from the service of the government and issued a statement in which he entirely exonerated Mr. Ballinger. This action, however, did not stop the public discussion. Gifford Pinchot, the Chief Forester, was admittedly hostile to Mr. Ballinger's administration of the General Land Office and made no attempt to conceal the fact that he was in sympathy with the charges made by Mr. Glavis, believing them to be true. Indeed it was upon Mr. Pinchot's advice that Glavis went to the President with his charges against Secretary Ballinger.

Several prominent magazines assumed a hostility to Mr. Ballinger's administration of office and to his qualifications for that office, and it was assumed that a portion of the material used in the preparation of articles published in these magazines was furnished by officials of the Forestry Bureau who were opposed to Secretary Ballinger. In November, 1909, the Secretary denied the charges made against him, but agitation continued and on December 21 the matter was taken up in the Senate where Senator Flint of California submitted a resolution calling for all the papers relating to the Alaska coal land charges which were based on the charges of Glavis against Secretary Ballinger. This resolution was passed and a statement was immediately made by Senator Jones of Washington that this was in accordance with the personal wishes of the Secretary of the Interior. It was decided on December 28 that an investigation should be carried on by the joint committee of the Senate and the House to consist of six members of each House.

On January 7 President Taft removed Gifford Pinchot, Chief Forester, and with him two leading subordinate officers of the Forestry Bureau, Overton W. Price, associate forester and Albert C. Shaw, assistant law officer. Two days before a joint resolution had been introduced into Congress for the investigation demanded by Secretary Ballinger. On January 6, when in answer to a resolution, the Senate received from the President the report of the Attorney-General and other statements which had guided him when he exonerated Secretary Ballinger and ordered the dismissal of L. R. Glavis, Field Agent of the Land Office, a letter was read from Mr. Pinchot by Senator Dolliver, to whom it had been written at his request as chairman of the Committee on Agriculture. This letter was the immediate cause of Mr. Pinchot's removal. It was mainly a defense of his subordinates, Price and Shaw. Mr. Pinchot said that these men had made public certain official information concerning the Cunningham coal claims in Alaska and had countenanced the publication of certain facts by L. R. Glavis after his removal. They had also in other ways directed public attention to the imminent danger that the Alaska coal fields might pass into private hands. This information came to their knowledge officially and

Mr. Pinchot said was of a nature proper to be made public unless there were secrets which the people were not entitled to know concerning the sources, nature and progress of claims made for portions of the public lands. Mr. Pinchot said that he had sent Shaw to aid Glavis at the latter's request, in arranging his material for submission to the President. The letter contained an intimation that the decision of President Taft exonerating Secretary Ballinger and dismissing Glavis had been arrived at by a mistaken impression of the facts. He admitted that his subordinates had violated a rule of propriety in certain of their actions and declared that they deserved a reprimand for this and had received one, but that he should recommend that no further action concerning them be taken. They had, he said, successfully directed public attention to the national danger. He disclaimed any desire to shirk any part of his own legitimate responsibility for what they had done. Following the reading of this letter the assertion was made by Senator Hale that Mr. Pinchot had been guilty of a serious breach of the rules for the conduct of government officers and had disobeyed President Taft's order relating to the giving out of information by subordinates. After consideration in two cabinet meetings, the President ordered the removal of Mr. Pinchot, Mr. Price and Mr. Shaw. He also sent to Mr. Ballinger a letter. In this the President stated that Price had offered to Secretary Wilson his resignation "on the ground that he had been engaged by Mr. Shaw in instigating the publication in various newspapers and magazines of articles attacking the good name of Secretary Ballinger and of charging the Interior Department and the Land Office with corruption." He pointed out that Secretary Wilson had asked for Mr. Pinchot's recommendation in regard to this and that the latter had said that he wished to make a statement which should be read in the Senate at the same time that the President's message transmitting the record in the Glavis case reached there and that Mr. Pinchot had given Senator Dolliver this statement to read, against the advice of Secretary Wilson, the former's superior. After some comments on Mr. Pinchot's action in this regard the President's letter continues: "In order to understand the full purport of your letter, in which you admit the complicity of Price and Shaw in the publications of the press, it should be said that the gravamen of the Glavis charges was that Secretary Ballinger and the others were all affected by a corrupt wish to patent 33 so-called Cunningham claims upon coal lands in Alaska; that the question whether these claims were fraudulent or not remained to be decided upon the evidence after both the United States and the claimants had been heard; that every patent as an Executive act is completely within the jurisdiction of the President to direct the withholding of it in order that he himself may examine the evidence as to the validity of the claim." In the light of these facts the President declared that Mr. Pinchot's letter contained plain intimation that the President had reached a wrong conclusion as to the good faith of Secretary Ballinger and the officers of the Land Office, although Mr. Pinchot and his subordinates had seen only the evidence of Glavis the accuser, and had never read or seen the evidence of those accused or the records that they disclosed which were submitted to the President.

The President declared that Mr. Pinchot's letter further intimated that without the exploitation by Messrs. Shaw and Price in the daily, weekly and monthly press of the charges of Glavis, the administration, including the President and the officers of the Interior Department and the Land Office, would have allowed certain fraudulent claims to be patented on coal lands in Alaska, although the matter had been specifically brought to the attention of the President by the Glavis charges. The President asserted that the letter to Senator Dolliver was written for the purpose of offsetting in the public mind the President's decision in the Glavis case, supported by the opinion of the Attorney-General after a full examination by both of the evidence adduced by the accuser and the evidence on behalf of the accused. This letter, he declared, was in effect an improper appeal to Congress and the public to excuse in advance the guilt of the subordinates before the President could act and against the President's decision in the Glavis case before the whole evidence on which that was based could be considered. The President concluded as follows: "By your own conduct you have destroyed your usefulness as a helpful subordinate of the government, and it therefore now becomes my duty to direct the Secretary of Agriculture to remove you from your office as the Forester." In connection with the removal of the Forester, the House of Representatives voted on January 7 to withhold from the Speaker the power to appoint the six members of the investigating committee and to vest this power in the House itself. The vote was 149 to 146. Twenty-three Republican insurgents joined the Democrats.

Following his dismissal Mr. Pinchot published a long statement in which he declared that he proposed to stay in the fight for conservation and equal opportunity, and would support the administration when it moved toward the paramount end, which is the welfare of the plain people. He asserted that out of the forestry service grew the conservation movement. He declared that the situation was serious and that the dangers which confronted the movement to-day must be met by positive congressional action.

The members of the joint committee making the investigation concerning all questions involved in the Pinchot-Ballinger controversy were composed of six Senators and six Representatives. The Republicans were Senators Nelson of Minnesota, Flint of California, Sutherland of Utah, and Root of New York; Representatives McCall of Massachusetts, Olmsted of Pennsylvania, Denby of Michigan, and Madison of Wisconsin. Democrats, Senators Paynter of Kentucky, and Fletcher of Florida; Representatives Graham of Illinois and James of Kentucky.

On January 12 the President appointed Henry S. Graves Chief of the Forestry Service.

The investigating committee began its deliberations shortly after its appointment, and held sessions more or less regularly until the termination of the first session of the Sixty-first Congress. A vast amount of testimony was taken. Mr. Pinchot took the stand in defense of Mr. Glavis, and made a sharp criticism of Secretary Ballinger's administration of the Land Office. Mr. Ballinger appeared in his own behalf, denied all charges against him and declared that a conspiracy to blacken his character was at the base of the whole matter. The

evidence, on the whole, was, to the lay reader, inconclusive. The accusers of Mr. Ballinger were unable to bring convincing proof of actual misconduct in office, while Mr. Ballinger's attitude on the stand showed personal resentment and feeling to such a degree as to prejudice many against him. The case against Mr. Ballinger was presented by Louis D. Brandeis.

On the termination of the first session of the Sixty-first Congress, the committee adjourned, subject to the call of the chairman, without passing upon the testimony taken. Pursuant to the call of the chairman the committee met in Minneapolis on September 7, with only six members or less than a quorum present, four Democrats, Mr. Madison and Chairman Nelson. The Democrats and Mr. Madison adopted a resolution censuring Secretary Ballinger. Mr. Nelson refused to vote and declared that no quorum was present. Several weeks later six of the eight Republican members of the committee met in Chicago and adopted a resolution rebuking their colleagues for attempting to put through a resolution when no quorum was present. In December a majority of the committee submitted its report to Congress. This was signed by Senators Nelson, Flint, Sutherland and Root, and Representatives McCall, Olmsted and Denby. This report declared the charges against Secretary Ballinger to be unsustained by the evidence given. The conclusion was reached by a majority of the committee that "Neither any fact proved nor all the facts put together exhibit Mr. Ballinger as being anything but a competent and honorable gentleman, earnestly and faithfully performing the duties of his high office, with an eye single to the public interest." The findings in relation to the Cunningham coal claims was that the charges and insinuations against Secretary Ballinger in regard to these land entries or other coal land claims in Alaska are not justified and his conduct in respect thereto is not justly censurable. The minority members of the committee reported as follows: "That Richard A. Ballinger has not been true to the trust reposed in him as Secretary of the Interior, that he is not deserving of public confidence and that he should be requested by the proper authorities to resign his office." Mr. Madison, in a separate report, substantially agreed with the findings of the minority. No action had been taken by Congress on this report at the end of the year.

ACTIVITIES OF THE PRESIDENT. On February 12, President Taft made a long address at the annual Lincoln Dinner of the Republican Club of New York City. His subject was the promises and policy of the Republican party. He declared that the party had either substantially complied with or was about to perform these promises within the present session of Congress. He asserted that while the party platform had promised revision, it had not expressly said that the revision was to be downward, although such a revision was fairly implied. He claimed that the revision of 1909 was a downward revision, not only with respect to silks and liquors, and high priced cottons in the nature of luxuries, but with respect to nearly all other articles except woollens, which were not affected at all. The change which this tariff affected, he said, was a marked change downward in the rate of duties. The President declared that the

amount of misrepresentation to which the bill had been subjected had never been exceeded in this country. He pointed out that for the first six months of the new tariff the average duty on all dutiable imports had been 21.9 per cent. against 24.3 per cent. for the corresponding periods of the preceding four years under the Dingley tariff. He declared that there had been an increase of revenue which for the six months amounted to \$166,002,856 against the Dingley Tariff semi-annual average of \$130,265,841 and an average of \$83,147,625 under the Wilson-Gorman tariff. He asserted that the new tariff was the best that had ever been passed and that it indicated the adoption by the Republican party of a policy to change from an increase of duties to a reduction of them, and to increase revenues at the same time. The President drew attention to bills pending in Congress for the regulation of railroad rates, for the admission of New Mexico and Arizona to statehood and to conservation bills. He praised the bill introduced in Congress to amend the Sherman Anti-Trust law in the form of a Federal incorporation bill prepared by the Attorney-General. He said that he believed the bill was constitutional and that it would furnish a solution of the present difficulties. The remainder of the President's speech was a general defense of the Republican party since it had control of the government.

At a dinner of the National League of Republican Clubs at Washington on April 9, President Taft made an address in which he urged the Republicans to be loyal to the party. He declared that this was the time for doing things, for passing the measures which represented the party's policies. As directly bearing upon his attitude toward the insurgents, the following paragraph from the President's speech attracted much attention: "Tonight we are reading nobody out of the party. We want all in the ranks and all have the opportunity to establish their claims to Republicanism by what they do in Congress. When the evidence is shown that a member of the party does not desire the success of the party and is unwilling to redeem the party's pledges, the label he bears is not that of Republicanism \* \* \* No man has a right to read another out of the party. He reads himself out if he is disloyal and if he cannot by his own work show his colors. I want the help of all Republicans, even if some have slipped away a little." On the same day before the Hamilton Club in Chicago, Attorney-General Wickersham made a long and elaborate review of the first year of Taft's administration. His references to the insurgents were in an altogether different vein from those of President Taft quoted above. He declared that it was time for those who claimed to be Republicans and worked against the policies of the Republican party, to leave the latter party and join the Democrats. He declared that everyone must choose whether he is for the President and the party. If anyone wishes to join the Democratic party, he said, let him do so, but let him not claim to be a Republican and in and out of season work to defeat the Republican measures and subvert the influence of a Republican President.

From April 29 to May 5, the President with Secretary Knox made a short trip, during which he stopped for two days in Pittsburg.

Here he made an important address in which he warmly commended Secretary Knox in an elaborate review of the work of the State Department. He declared that the example set by the last administration in cultivating good relations with all the South American and Central American republics had been followed closely by Mr. Knox. He said that to the latter's tact and diplomatic guidance was largely due the fact that a war between Peru and Bolivia was avoided. Mr. Knox, he continued, was bending his energies to procure an agreement between Peru and Ecuador. The President warmly defended the action of Secretary Knox in regard to Nicaragua. He assailed Zelaya as tyrannical and unprincipled, and to him attributed the troubles which had arisen in that country. The President declared that "the theory that the field of diplomacy does not include in any degree commerce and the increase of trade relations is one to which Mr. Knox and this administration do not subscribe. We believe it to be of the utmost importance that while our foreign policy shall not be turned a hair's breadth from the straight path of justice, it may well be made to include active intervention to secure for our merchandise and for our capitalists opportunity for profitable investment which shall inure for the benefit of both countries concerned." He pointed out that the State department was endeavoring to assist Americans in securing railway contracts in Turkey, to obtain for American capital a share of the railway loans in China and to maintain the policy of the "open door" in the Orient. He praised as a direct contribution to the cause of peace Secretary Knox's project for evolving a general court of arbitral justice out of the theory of the Prize Court Convention drawn up by The Hague Conference. On May 4, at a luncheon given by the Business Men's League in St. Louis, the President spoke of the Supreme Court, having in mind a criticism of the appointment of Governor Hughes, made by Mr. Bryan. The President declared that the Supreme Court was to him the most sacred part of the government. He said: "I believe that we all, Democrats and Republicans, Republicans and Insurgents, as patriotic citizens—and we are all that—are in favor of having upon that bench men who are foes of nothing but what is wrong and are in favor of equal justice to every one, whether that be an organization of men doing business under the law and using the instrumentality of a corporation to promote the industries of the country, or be he the humblest citizen struggling with his hands to earn a living for his family. I do not mean to say that men by their habits of life may not acquire a bent or prejudice in one direction or another and that it is not wise to select for the highest tribunal men who have such a bent and who have in their makeup the danger of prejudice to one interest or against another, but I do mean to say that there is in the public journals and in what I may call the cant of the demagogues a disposition to charge that kind of a bent in favor of corporate wealth and corporate greed and corporate monopoly when there is no justice for the charge at all. This assumption of peculiar honesty, manifested by class declaration and the stirring up of class spirit is something that ought to be deprecated in our Republic or else it will lead

to great danger. We ought to take up the discussion of public questions and discuss their effect with judicial calmness and not have our minds diverted by charges of prejudice and corrupt motives." The President also spoke of the great need of reform in methods of litigation to prevent delay which gave advantage to the man with the highest resources.

On September 5 the President addressed the Conservation Congress at St. Paul, (see CONSERVATION) and on September 19 he met Mr. Roosevelt in New Haven.

On September 21, President Taft made an address on the occasion of the completion by the government of a dam on the Ohio River, a few miles below Cincinnati. The President severely criticised the piecemeal method of providing for river and harbor improvements, describing the method of legislation for improvements in two-thirds of the congressional districts. He pointed out that the distribution of the sum available was made with very little regard for the comparative merits of the several projects and that the completion of every improvement was delayed for years. He declared that there should be a supervising Board of Engineers to recommend the improvements in the order of their importance. He said that he had intended to ask Congress for authority to organize a board, empowering it to determine whether certain projects should not be laid aside or abandoned. He said, "In signing the last River and Harbor bill, which had many of the characteristics of previous bills, and was subject to the criticism that many items were contained therein that were merely piecemeal, I indicated to Congress that another bill of that character would merit a veto. I ventured to say this in order to bring to the attention of Congress the necessity for a change in the form of the bills, and I am hopeful that with the reason and argument all on the side of the change, the suggestion contained in my memorandum may be given weight. Certainly until this fundamental reform is put into effect, the improvement of our rivers and inland waterways will be chiefly important because of the local advantages of the money expended, and not because of the betterment of our transportation.

"The evil in the corrupt control of a Congress or a legislature by private interest is manifest and always calls for condemnation. But there is another kind of legislative abuse as dangerous to the public weal in certain of its aspects as corruption, and that is the selfish combination of the representatives of a majority of the constituencies to expend the money of the government for the temporary benefit of a part, or with little benefit to the whole. It is the duty of the majority and the minority to legislate always for the benefit of the whole people, and any enactments that look to the selfish exploitation of less than the whole at the expense of the whole, and without benefit to the whole, is a species of legislative abuse that comes very near corruption, in its effect, and is perhaps more dangerous than corruption, because those who support such a combination are generally bold in its defense.

"The days of the pork barrel should be numbered. The country is roused against the corporate or corrupt control of legislative agencies, but it is doubtful whether the con-

stituencies as yet are able to perceive the higher obligation on the part of themselves and their representatives not to use their votes in combination to appropriate to a part that which belongs to the whole."

In September President Taft issued a statement in the form of a letter signed by his secretary in which he declared that the political patronage should no longer be withheld from Senators and Congressmen who had hitherto been opposed to his policies. In his letter the President made the following statement: "While Republican legislation pending in Congress was opposed by certain Republicans, the President felt it to be his duty to the party and to the country to withhold Federal patronage from certain Senators and Congressmen who seemed to be in opposition to the administration's efforts to carry out the promises of the party platform. That attitude, however, ended with the primary elections and nominating conventions which have now been held and in which the voters have had an opportunity to declare themselves. The people have spoken, and as the party faces the fall elections the question must be settled by Republicans of every shade of opinion whether the differences of the last session shall be perpetuated or shall be forgotten. \* \* \* He will now follow the usual rule in Republican Congressional districts and States and follow the recommendations made by Republican Congressmen and Senators of whatever shade of public opinion, only requiring that the men recommended shall be good men, the most competent and the best fitted for the particular office. "It was generally believed that by this statement the President wished to indicate that so far as he was concerned the opposition to the insurgent Senators and Representatives on the part of the administration would cease in the interest of party harmony.

The President as usual spent the summer months at Beverly, Mass. On June 1, Charles D. Norton, Assistant Secretary of the Navy, was appointed Secretary to the President in place of Fred W. Carpenter who had resigned and had been appointed Minister to Morocco (see DIPLOMATIC SERVICE). The appointment of Mr. Norton was taken to be an indication that the President wished an advisor who was acquainted with the political conditions throughout the country.

President Taft took no active part in the political campaign of 1910 except that he wrote several letters, the most important of which was that relating to the political affairs of the State of New York (see NEW YORK). He did not seem to be greatly affected by the Democratic victories and on the day following the election sailed for Panama on a long anticipated visit to the Canal. Here he made a careful inspection of the work, remaining four days. On his return he visited several cities in the South, including Richmond, Va.

**ECONOMY OF ADMINISTRATION.** President Taft has been especially anxious to bring about a reduction in the expenses of administering the government. His measures have all dealt with this subject, and in November, 1910, he appointed Dr. Frederick A. Cleveland, one of the directors of the Bureau of Municipal Research in New York City and an authority in public accounting and administration, to carry on an inquiry into the administration of the various



**WOODROW WILSON**  
New Jersey



**JOHN A. DIX**  
New York



**SIMEON E. BALDWIN**  
Connecticut



**EUGENE N. FOSS**  
Massachusetts

**FOUR DEMOCRATIC GOVERNORS ELECTED IN 1910**

৳৩০৬

departments with a view to possible reorganization with a resulting decrease in the expenditures. Dr. Cleveland was carrying on his researches in the business of the various departments at the end of the year.

**PANAMA LIBEL SUITS.** The libel suit brought by the United States government against the corporation publishing the *New York World*, was brought to trial on January 24, 1910, before Judge Hough in the United States Circuit Court at New York. This suit grew out of an indictment of the corporation in 1908 for criminal libeling of Theodore Roosevelt, Douglas Robinson, his brother-in-law, William H. Taft, Charles P. Taft and William Nelson Cromwell. The substance of the assertions published was that, as a result of early information from President Roosevelt and Secretary Taft, Mr. Robinson and Charles P. Taft were able to make enormous profits by buying up the stock of the French Panama Company for about \$4,000,000, while the government afterwards paid \$40,000,000 for the same stock. Judge Hough directed that the indictment be quashed on the ground that it was not sufficiently authorized by the statute on which it rested. This is an old law which makes penal codes of State applicable for the punishment of offenses committed on Federal reservations or within their boundary. The offense in this case was the circulation of a newspaper article in the West Point Reservation and in the Post Office Building in New York City. Judge Hough held that this did not fall within the original intention of the law. In his opinion the appeal should be made to the Supreme Court. Similar action was taken in 1909 in the case of the indictment against the proprietors of the *Indianapolis News* for publishing the same article.

#### CAMPAIGN AND ELECTIONS OF 1910

Details of the elections of 1910 as they relate to the election of State officers and legislatures will be found in the political history of the different States. The paragraphs below are intended to sum up the general results of the election, chiefly as they relate to national politics.

A strong Democratic trend made evident through special elections held in Massachusetts, New York and several other States indicated that if Congress remained Republican it would be by the narrowest possible margin. Students of politics were not agreed as to the causes of this Democratic tendency, although there was no lack of theories to account for it. Among these were the Payne-Aldrich tariff bill, dissatisfaction with certain policies of President Taft's administration and local factional disputes in different States. The sentiment of Democratic victory had become so pronounced before the elections of November 8 that only the most sanguine Republicans hoped for a general Republican victory.

The chief interest centred in New York, always a doubtful State, and in Indiana, New Jersey, Massachusetts and in several of the Middle Western States where Republican insurgency had gained an especially strong footing.

The election resulted in a Democratic victory greater even than the most optimistic Democrats had prophesied. Democratic governors were elected in the normally Republican

States of Maine, Connecticut, Massachusetts, New Jersey and Oregon. As a result of the changes in the State legislatures, Democratic Senators will succeed Republicans in the States of Indiana, Missouri, Montana, Nebraska, New Jersey, Maine, New York, Ohio and West Virginia.

As a result of the elections, the House of Representatives in the Sixty-second Congress will be composed of 228 Democrats and 168 Republicans with one Socialist and one vacancy, a Democratic majority of 66. This may be compared with the composition of the House in the Sixty-first Congress, which was 215 Republicans, 175 Democrats, with one vacancy, or a majority of 40. The total vote cast for Congressmen in the election is of considerable interest. There were cast for Democratic Congressmen 5,721,580 votes; for Republican Congressmen 5,598,814 votes; scattering, 727,366 votes. The Democratic plurality was 128,766. The popular vote for Congressmen in 1908 was as follows: Republican, 7,242,985 votes; Democrats, 6,558,517 votes. Thus it appears that while the Democrats gained slightly more than 1,000,000 votes the Republicans lost nearly 2,000,000. The analysis of the vote in the different States shows that the victory was due, not so much to an accession of Democratic votes as to a loss in Republican votes. For example, Governor Harmon received approximately 477,000 votes in Ohio while Mr. Bryan in his last candidacy received 502,000. In New York the Democrats did not even poll their full vote. Governor Dix received fewer votes than did the Democratic candidate in the previous election. The same is true in nearly all other States in which the Democrats were victorious. The Republicans will have such a slender majority in the Senate in the Sixty-second Congress that a few changes by death will give the Democrats complete control of congressional legislation, especially in view of the fact that the Republican Senators are divided in their policy and the insurgent Senators are not unlikely to vote with the Democrats if occasion arises.

The most conspicuous individual figure in the campaign and election was Theodore Roosevelt. Declaring upon his arrival in the United States that he would take no active part in politics, he was constrained by circumstances to devote almost his entire energy from the conventions in September to the elections in November to matters connected with the campaign. He made speeches in all parts of the country and his declaration of policies on the "new nationalism" became one of the chief issues of the campaign. Just how much effect Mr. Roosevelt's participation had in the result depends upon the point of view of the observer. Those hostile to him declared that it was a large factor in the Republican defeat on account of his radical utterances, while his supporters insist that the Republicans would have been defeated in any event and that Mr. Roosevelt if anything reduced the Democratic majorities.

#### FOREIGN RELATIONS

The foreign relations with the United States were without serious incident in 1910. Conditions in Central America remained unsettled owing chiefly to the disorders in *Nicaragua*.

The capture and execution of two American citizens, Groce and Cannon, by the Zelayan government in 1909, together with other offenses, made it the duty of the American government to take measures with a view to ultimate reparation and to the safeguarding of all its interests. Diplomatic relations were discontinued with Nicaragua in 1909 but the expulsion of Zelaya and the accession of President Estrada brought about changed relations between the two countries. The new government showed a conciliatory attitude toward the United States and promises were given that reparation would be made for all injuries. Soon after his inauguration as President, Señor Estrada sent a message to Secretary Knox assuring the American people of the warm regard entertained for them by the victorious revolutionists and requesting that the United States government send to Managua a commission to arrange for the settlement of all differences. In accordance with this request, Thomas C. Dawson, the newly appointed Minister to Panama, was designated as American commissioner to proceed directly to Managua. Among the important matters discussed was the punishment of those persons who were responsible for the killing of Groce and Cannon. Objection to the election of Dr. Mendoza to the vice-presidency of Panama caused considerable ill feeling in the latter country and rumors were industriously circulated that Panama was to be annexed to the United States. During the President's visit to the Panama Canal in November he was given a dinner by Acting President Arosemena, at which he took occasion to put a stop to these rumors. He declared that the treaty between the two countries made the United States the guarantor of the integrity of the Republic of Panama and therefore in a sense the guardian of the liberties of her people. He declared further that the United States had no desire to add further to the territory under its jurisdiction except as the operation of the canal might require. A boundary dispute between *Costa Rica* and Panama was settled in August when the former approved a protocol drawn at Washington through the offices of the United States State Department providing for arbitration of disputes between the two countries by the Chief Justice of the United States Supreme Court. Upon his return from the inspection of the Panama Canal in November, President Taft stopped in *Cuba* and was the first American President to honor the Cuban Republic in this manner. Mr. Taft landed at Guantanamo from the United States cruiser *Tennessee* on November 19.

The Orinoco Steamship case, which was the final subject for dispute with the Republic of *Venezuela* was decided by The Hague Tribunal to which it had been referred (see INTERNATIONAL ARBITRATION). The Alsop claim controversy with *Chile* which has pended for many years and which had been referred to King Edward as arbitrator previous to his death was transferred to his son, King George.

The boundary dispute which threatened war between *Peru* and *Ecuador* was referred to The Hague Convention as a result of the mediation of the United States, Brazil and Argentina. During the year *Argentina*, *Chile* and *Mexico* celebrated the one hundredth anniversaries of their independence and representa-

tives were sent by the United States government to take part in these celebrations. Considerable feeling was developed in Mexico as a result of the lynching of a Mexican, Antonio Rodriguez, at Del Rio, Texas, on November 2. Rodriguez had shot and killed the wife of a ranchman whom he had asked for food and whose reply to his request he did not like. He was promptly captured and placed in the jail at Rock Springs. On November 3, the ranchmen of the vicinity broke into the jail, took him out and burned him at the stake. Several newspapers published in the City of Mexico printed inflammatory articles when the news reached the capital and on the night of November 8 there were riotous demonstrations against the Americans. The riots continued on the following day when windows were broken and an American flag was pulled down and torn to pieces, and a car containing American children was stoned. The son of the American Ambassador was assaulted. Mr. Wilson, the Ambassador, protested, declaring that the police were not endeavoring to protect him and other Americans. The Mexican Minister at Washington protested to the United States government against the burning of Rodriguez and asked for reparation. The government requested the governor of Texas to make thorough inquiry. The Mexican Minister of Foreign Affairs called upon Minister Wilson expressing his regret and promising that that offending newspapers should be suppressed. On the night of November 10, however, mobs in the city of Guadalajara filled the streets crying "Death to the Americans." They broke the windows of American banks and stores and burned an American flag. On the same night the office of the American Consul in Ciudad Porfirio Diaz, across the river from Eagle Pass, Texas, was wrecked by the mob and the records of the office were destroyed. In Guadalajara on the night of November 11, Carlos B. Carothers, an American, while defending his home against the mob, shot and killed a Mexican boy. He surrendered to the authorities and was lodged in jail. The police and soldiers attempted to quell the riots and many rioters were arrested. On November 11, Minister Wilson telegraphed that the Mexican government was using its best efforts to preserve order and protect Americans. Secretary Knox issued a statement expressing regret for these occurrences and declared that at no time had the governments and people of the two countries sustained toward each other closer and more cordial relations than at the present time. He declared it most unfortunate that the brutal crime in the United States, of which a Mexican was the victim, should be an excuse for a demonstration of hostility toward Americans in Mexico. He said, "It is a satisfaction to believe that such demonstrations find little sympathy in the body of the Mexican people and none in the Mexican government. I am sure that the Mexican government will be swift to put down all hostile demonstration against Americans in Mexico and to punish those engaged in them, as this government will be prompt to press for the punishment of persons guilty of crimes against citizens of Mexico residing in this country." A man was sent by the Mexican government to Texas to investigate the lynching of Rodriguez and local authorities

were requested by the governor of Texas to assist them in their labors. The assertion was made that Rodriguez was not a Mexican citizen, but was a native of New Mexico and had voted there. The Mexican officer who investigated the lynching reported that resident Mexicans had taken part in it and had publicly expressed their approval of it. He declared it to be his opinion that Rodriguez was either an insane person or a fugitive from justice. He is said to have confessed before his death that he had recently murdered and robbed two Mexicans.

Relations with *Canada* were of unusual interest during the year as a result of negotiations for an agreement on the minimum tariff rates, and for a reciprocity agreement. See **TARIFF**, and **CANADA**. The settlement of the fisheries dispute with *Newfoundland* by The Hague Tribunal was the most important event in the history of arbitration in many years. A detailed account of this will be found in the article **ARBITRATION**. On May 5 Secretary Knox and Ambassador Bryce exchanged ratifications of a new waterway treaty with Canada, and on May 22 a treaty between the United States and Canada settling the coast boundary between Maine and New Brunswick was signed.

The chief diplomatic relations with European countries were concerned with the negotiations regarding a minimum tariff rate. These are discussed in the article **TARIFF**. As a result, agreements had been made with most of the countries of Europe at the end of the year. A preliminary diplomatic agreement was reached with *Great Britain* regarding the arbitration of pecuniary claims which each government has against the other.

The republic set up in *Portugal* as a result of the overthrow of the monarchy was formally recognized by the United States for the purpose of ordinary intercourse pending formal recognition by the Powers. During disturbances which resulted from the strike in Berlin, *Germany*, several newspaper correspondents were injured by German police officials. Complaints were made by the State Department on October 12 and the German Foreign Office expressed regret for this attack. A special Ambassador was sent to *Turkey* to return the visit of the special Embassy announcing the accession of Mohomet V., the Ottoman sultan. On August 31 Turkey granted to American religious, educational and benevolent institutions exemption from the Ottoman law and permitted them to hold land. The new kingdom of *Montenegro* was formally recognized by the United States.

The scene of interest in affairs in the Far East during the year was in *China*. Negotiations for a loan to the Chinese government for the construction of the trunk railway lines from Hankow southward to Canton and westward through the Yangtse Valley, known as the Hukuang loan, were concluded by representatives of the various financial groups in May, and the results were approved by the representative governments. The basis of the settlement of the terms of this loan was one of exact equality between America, Great Britain, France and Germany in respect to financing the line and supplying the materials for the proposed railways and their future branches.

In December, 1909, Secretary Knox com-

municated to the governments of China, Japan, Russia, Great Britain, France and Germany a proposal that the railroads of Manchuria be turned over to China and placed in the hands of a national syndicate, which should develop them for commercial instead of political purposes, thus insuring the neutrality of this region. In the note, which was made public on January 5, 1910, Mr. Knox explained that the American government made this proposal in accordance with the policy inaugurated by the late Secretary Hay for the maintenance of the "open door" in Manchuria. The Secretary declared that such a vesting in China of the ownership of its railroads would have great international advantages. In concluding his proposal he noted the fact that an Anglo-American syndicate had obtained a concession for a railway connecting Aigun in northern Manchuria with Chin-Chowfu, farther to the south and that the British and American governments intended to support this concession diplomatically. Late in January, 1910, it was announced that the Chinese foreign board had refused to accept Secretary Knox's proposition, and on January 21 the Japanese and Russian governments in notes handed to the American Ambassadors at Tokio and St. Petersburg declined to assent to Secretary Knox's proposal.

Relations with *Japan* were uniformly friendly during the year. On communicating to the United States the fact of the annexation of Korea, the Japanese government gave assurance of the full protection of the rights of American citizens in Korea under the changed conditions. During the year the Secretary of War visited Japan and China in connection with his tour to the Philippines. Friendly visits of many distinguished persons from the Far East were made to the United States in 1910. Chief among these were Their Imperial Highnesses Princes Tsai-tao and Tsai-Hsun of China; and His Imperial Highness Prince Higashi Fushimi and Prince Tokugawa, President of the House of Peers of Japan.

**UNITED STATES CENSUS.** The Census of 1910, the thirteenth taken in the history of the government, was made in accordance with a law passed on July 2, 1909. Two bills were passed, at that time, one of which appropriated \$10,000,000 for taking the census, while the other presented qualifications of the census takers. In the winter of 1908, President Roosevelt had vetoed a bill which provided for the taking of the census, but which omitted to provide for the appointment of the clerks and other employes by competitive examination under the Civil Service. In the final bills passed, as noted above, this defect was remedied. In order that the employes might not be composed disproportionately of persons who live in the District of Columbia, it was provided that the appointees selected for the work must actually have lived for at least one year in the State from which they were named.

On May 26, 1909, E. Dana Durand of California was appointed Director of the Census to succeed S. N. D. North, who had resigned.

**SCOPE AND METHODS.** The scope and method of the Thirteenth Census differed in several respects from that of the Twelfth. First, the inquiry of the Twelfth Census relative to deaths was dropped, as more accurate, though less com-

prehensive, statistics may be secured by compiling the results of the current registration of deaths; second, the enumeration of population and agriculture was of the date April 15 instead of June 1 as in the census of 1900; third, a complete system of Civil Service examinations was provided for the appointment of temporary clerical help; fourth, a few minor changes in the scope of the inquiries concerning population, agriculture and manufactures were made by the Census Act. The most important of these was an amendment passed in March, 1910, whereby an inquiry was added regarding the mother tongue of persons born abroad, or of the foreign-born parents of persons born in the United States. Another important change in the schedule, although not required by law, was the addition of an inquiry concerning the industry in which the person was engaged, as well as the specific occupation pursued.

**POPULATION.** The schedules relating to population included for each inhabitant the name, relationship to head of family, color, sex, age, conjugal condition, place of birth, place of birth of parents, number of years in the United States, occupation, whether or not employer or employe, and if employe, whether or not employed at the time of enumeration and the number of months unemployed during the preceding calendar year, whether or not engaged in agriculture, school attendance, literacy and tenure of home, and whether or not a survivor of the Union or Confederate army or navy; the name and address of each blind or deaf and dumb person. The enumeration of institutions shall include paupers, prisoners, juvenile delinquents, delinquents, insane, feeble-minded, blind, deaf and dumb, and inmates of benevolent institutions.

**AGRICULTURE.** The schedules relating to agriculture included name, color and country of birth of occupant of each farm, tenure, acreage of farm, acreage of woodland and character of timber thereupon, value of farm and improvements, value of farm implements, number and value of livestock on farms and ranges, number and value of domestic animals not on farms and ranges and the acreage of crops planted and to be planted during the year of enumeration, the acreage of crops and the quantity and value of crops and other farm products for the year ending December 31 next preceding the enumeration.

**MANUFACTURES AND MINING.** The schedules of inquiries relating to manufactures and of mines and quarries included the name and location of each establishment; character of organization, whether individual, coöperative or other form; character of business or kind of goods manufactured; amount of capital actually invested; number of proprietors, firm members, co-partners, stockholders and officers and the amount of their salaries; number of employes and the amount of their wages; quantity and cost of materials used in manufactures; amount of miscellaneous expenses; quality and value of products; time in operation during the census year; character and quantity of power used and the character and number of machines employed.

**ENUMERATION.** The work of enumerating the population which was begun throughout the country on April 15, required a force of 70,000 enumerators under the direction of 330 supervisors. The enumerators averaged about one

to each 1300 inhabitants. The enumeration of cities was completed by May 1, and the figures outside of cities on May 15. To tabulate the returns gathered by these enumerators about 3500 clerks were employed.

The inquiry relating to the nationality of foreign-born citizens determined by the mother tongue was the most important change in the population schedule. This inquiry was supplemental to the previous inquiry of the country of birth. As a large part of the immigration to the United States during recent years has been from countries which contained a highly composite population, for example, Austria-Hungary and Russia, it was deemed unfair to report under one head all persons born in such countries without distinguishing radically different nationalities. This was brought about by the use of the inquiry regarding the mother tongue.

Great care was used by the Director of the Census to secure as large a degree of intelligence as possible in the enumerators. More than 200,000 candidates took examination for these places. Papers were rated by the supervisors of the various districts, and the papers of those recommended for appointment were again examined in Washington.

**TABULATION.** To tabulate the great mass of population statistics within a reasonable length of time would be practically impossible were it not for the invention of machines for this purpose. Machines used in the Census of 1910 were in general principles similar to those used in 1900, but great improvements were made so that the work could be done much more cheaply and rapidly than in the previous years. An elaborate card system was employed. For each of the approximately 90,000,000 persons enumerated a separate card was prepared. By running these cards through tabulating machines equipped with special electrical devices facts regarding the population were recorded in any desired series of combinations. About 300 of these machines were operated day and night during the process of enumeration. Each clerk was able to turn out from 1500 to 2000 cards in seven hours.

More complicated than the simple enumeration of the population was the task of counting its characteristics. This was done by tabulating machines. In order to avoid the use of too large a number of counters on the tabulating machines or the necessity of running the cards through these machines an excessive number of times the cards themselves were first sorted according to the principal classifications such as sex, color and nativity. Separation by sex was made automatically by the operation of punching machines. Other separations were made by passing the cards through electrical sorting machines, holes in the cards determining into what groups they should go.

**PUBLICATION OF RETURNS.** As it was important that the first facts published as a result of the census should relate to the total population in each State and in each community, special efforts were made to secure these figures as early as possible. Final figures for the population of each State were known about October 1st, and in many cases the data for the individual States and cities had been published previous to that date.

Some information regarding the most important subjects covered by the population census

in addition to those given in the tables below will be available sometime in 1911. This will cover the most important and generalized facts with regard to sex, color, race, general nativity, country of birth, citizenship, illiteracy and school attendance. Following this the subjects of age distribution, conjugal condition, length

of residence in the United States on the part of the foreign born, ability to speak English, occupations, and unemployment will be taken up, but no material concerning them will be available before the end of 1911, and in the case of occupations hardly before May or June, 1912.

TABLE I.—POPULATION OF THE UNITED STATES—TOTAL AREA OF ENUMERATION, CONTINENTAL UNITED STATES, AND NONCONTIGUOUS TERRITORY: 1910 AND 1900.

	1910	1900
The United States (total area of enumeration).....	93,402,151	1 77,256,630
Continental United States.....	91,972,266	75,994,576
Noncontiguous territory.....	1,429,885	1,262,055
Alaska .....	64,356	63,592
Hawaii .....	191,909	154,001
Porto Rico.....	1,118,012	2 953,243
Persons in military and naval service stationed abroad.....	55,608	91,219
<sup>1</sup> Includes 953,243 persons enumerated in Porto Rico in 1899.		
<sup>2</sup> According to the census of Porto Rico taken in 1899 under the direction of the War Department.		

With reference to agriculture, it is expected that about June or July, 1911, the principal tabulations showing the number of farms, acreage, value of property, number of animals, the different classes of acreage and yields of the principal crops will be completed. The figures dealing with certain individual States have already been issued. The more analytical presentations of the same classes of facts showing for example the acreage and value of farms of different sizes or farms of different tenures will require a somewhat longer time for preparation. The statistics of minor crops and farm products, including dairy products and the like, will, it is expected, be completed by the end of 1911. In the case of manufactures, the totalization of the general statistics for the United States by States and by industries will probably be finished by the middle of 1911. More detailed critical analyses of the same figures, together with presentations of the special statistics peculiar to individual industries, will be issued later. It is expected that they will be completed about June 30, 1912.

Aside from these main subjects the Census Bureau will publish as the result of the census, statistics of irrigation, on persons in institutions (criminals, insane, paupers and the like) and on the deaf and blind. Very little of this material will be available much before June 30, 1912.

At the end of the year Congress had appropriated \$12,000,000 for the expenses of the census and it was estimated at that date that a further appropriation of about \$3,000,000 would be necessary before the completion of the work.

POPULATION IN 1910. The Thirteenth Census of the United States was taken by the Bureau of the Census as of April 15, 1910. The total area enumerated includes continental United States, the territories of Alaska and Hawaii, and Porto Rico. The enumeration also includes persons stationed abroad in the military and naval service of the Government, who were specially enumerated through the cooperation of the War and Navy Departments.

Table I is a complete population statement for the area enumerated in 1910, distinguishing continental United States, Alaska, Hawaii, Porto Rico, and military and naval. The last four classes are grouped together under the

head of "Noncontiguous territory." The corresponding figures of the Twelfth Census of 1900 are also given for purposes of comparison.

The rate of increase from 1900 to 1910 was 20.9 per cent. for the total area of enumeration and 21 per cent. for continental United States. It will be noted that Table I does not cover other possessions of the United States than the ones mentioned. Including the population of Philippine Islands as enumerated by the census of 1903 under the direction of the War Department, 7,635,426, and adding estimates for the islands of Guam and Samoa and the Canal Zone, the total population of the United States and possessions is about 101,100,000.

TABLE II.—POPULATION OF CONTINENTAL UNITED STATES AND DECENNIAL INCREASE—NUMBER AND PER CENT: 1790 TO 1910.

Census	Total Population	Increase since preceding census	
		Number	Per cent
1910 .....	91,972,266	15,877,691	21.0
1900 .....	75,994,576	13,046,861	20.7
1890 .....	62,947,714	12,791,931	25.5
1880 .....	50,155,783	11,597,412	30.1
1870 .....	38,558,371	7,115,050	22.6
1860 .....	31,443,321	8,251,445	35.6
1850 .....	23,191,876	6,122,423	35.9
1840 .....	17,069,453	4,203,433	32.7
1830 .....	12,866,020	3,227,567	33.5
1820 .....	9,638,453	2,398,572	33.1
1810 .....	7,239,881	1,931,398	36.4
1800 .....	5,308,483	1,379,269	35.1
1790 .....	3,929,214	.....	....

Table II relates to continental United States only. There is given the population as enumerated at each census from 1790 to 1910, together with the number and per cent. of increase for each decade since 1790.

Table III gives the population of continental United States for each census from 1890 to 1910, by States. The States are grouped according to their geographical location into nine main divisions—New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain and Pacific. There is also given the number and per cent. of increase for each division and each State during the two decades since 1890, and the ranking of the States as to total population in 1910 and 1900.

TABLE III.—POPULATION OF CONTINENTAL UNITED STATES, BY STATES, 1890 TO 1910, WITH NUMBER AND PER CENT. OF INCREASE, 1890-1900 AND 1900-1910; ALSO RANKING OF THE STATES IN 1910 AND 1900.

State	Population		Increase from 1900 to 1910		Rank in population 1	
	1910	1900	Number	Per cent	1910	1900
Continental United States.....	91,972,266	75,994,575	15,977,691	21.0	..	...
New England Division.....	6,552,681	5,592,017	960,664	17.2	..	...
Maine .....	742,371	694,466	47,905	6.9	34	31
New Hampshire .....	430,572	411,588	18,984	4.6	39	37
Vermont .....	355,956	343,641	12,315	3.6	42	39
Massachusetts .....	3,366,416	2,805,346	561,070	20.0	6	7
Rhode Island .....	542,610	423,558	114,054	26.6	38	35
Connecticut .....	1,114,756	908,420	206,336	22.7	31	29
Middle Atlantic Division.....	19,315,892	15,454,678	3,861,214	25.0	..	...
New York .....	9,113,614	7,268,894	1,844,720	25.4	1	1
New Jersey .....	2,537,167	1,883,669	653,498	34.7	11	16
Pennsylvania .....	7,665,111	6,302,116	1,362,996	21.6	2	2
East North Central Division....	18,250,621	15,985,581	2,265,040	14.2	..	...
Ohio .....	4,767,121	4,157,545	609,576	14.7	4	4
Indiana .....	2,700,876	2,516,462	184,414	7.3	9	8
Illinois .....	5,638,591	4,821,550	817,041	16.9	3	3
Michigan .....	2,810,173	2,420,982	389,191	16.1	8	9
Wisconsin .....	2,333,860	2,069,042	264,818	12.8	13	13
West North Central Division....	11,637,921	10,347,423	1,290,498	12.5	..	...
Minnesota .....	2,075,708	1,751,394	324,314	18.5	19	19
Iowa .....	2,224,771	2,231,853	3 7,082	0.3	15	10
Missouri .....	3,293,335	3,106,665	186,670	6.0	7	5
North Dakota .....	577,068	319,146	257,910	80.8	37	40
South Dakota .....	583,888	401,570	182,318	45.4	36	38
Nebraska .....	1,192,214	1,066,300	125,914	11.8	29	27
Kansas .....	1,690,949	1,470,495	220,454	15.0	22	22
South Atlantic Division.....	12,194,895	10,443,480	1,751,415	16.8	..	...
Delaware .....	202,322	184,735	17,587	9.5	47	45
Maryland .....	1,295,346	1,188,044	107,302	9.0	27	26
District of Columbia.....	331,069	278,718	52,351	18.8	43	41
Virginia .....	2,061,612	1,854,184	207,428	11.2	20	17
West Virginia .....	1,221,119	958,800	262,319	27.4	28	28
North Carolina .....	2,208,287	1,893,810	312,477	16.5	16	15
South Carolina .....	1,515,400	1,340,316	175,084	13.1	26	24
Georgia .....	2,609,121	2,216,331	392,790	17.7	10	11
Florida .....	752,619	528,542	224,077	42.4	33	33
East South Central Division....	8,409,901	7,547,757	862,144	11.4	..	...
Kentucky .....	2,289,905	2,147,174	142,731	6.6	14	12
Tennessee .....	2,184,789	2,020,616	164,173	8.1	17	14
Alabama .....	2,138,093	1,828,697	309,396	16.9	18	18
Mississippi .....	1,797,114	1,551,270	245,844	15.8	21	20
West South Central Division....	8,784,534	6,532,290	2,252,244	34.5	..	...
Arkansas .....	1,574,449	1,311,564	262,885	20.0	25	25
Louisiana .....	1,656,388	1,381,625	274,763	19.9	24	23
Oklahoma .....	1,657,155	4 790,391	866,764	109.7	23	5 30
Texas .....	3,896,542	3,048,710	847,832	27.8	5	6
Mountain Division .....	2,633,517	1,674,657	958,860	57.3	..	...
Montana .....	376,053	243,329	132,724	54.5	40	43
Idaho .....	325,594	161,772	163,822	101.3	45	46
Wyoming .....	145,985	92,581	53,404	57.7	49	49
Colorado .....	799,024	539,700	259,324	48.0	32	32
New Mexico .....	327,301	195,310	131,991	67.5	44	44
Arizona .....	204,354	122,931	81,423	66.2	46	48
Utah .....	373,351	276,749	96,602	34.9	41	42
Nevada .....	81,875	42,335	39,540	93.4	50	51
Pacific Division .....	4,192,304	2,416,692	1,775,612	73.5	..	...
Washington .....	1,141,990	518,103	623,887	120.4	30	34
Oregon .....	672,765	413,536	259,229	62.7	35	36
California .....	2,377,549	1,485,053	892,496	60.1	12	21

1 Hawaii and Alaska, which do not appear in this table, rank as 48 and 51, respectively, both in the ranking for 1910 and 1900.

2 Total population, including population of Indian Territory and Indian reservations, which were specially enumerated in 1890.

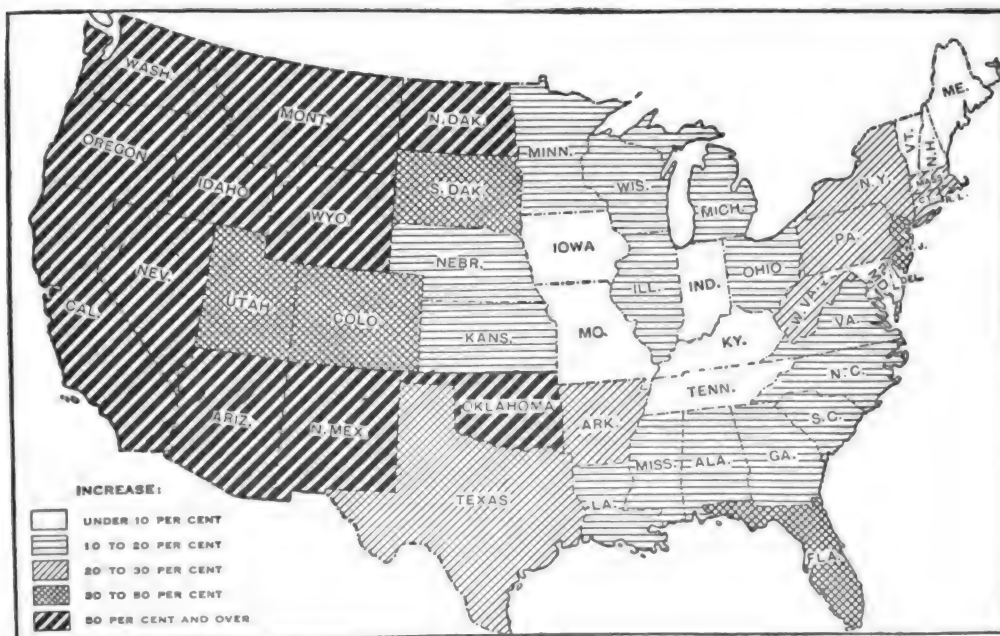
3 Decrease.

DENSITY OF POPULATION. Density figures for 1910, 1900, and 1890 are shown in Table IV. This table gives the population per square mile of land area for each State and territory, in each

of the three census years named. The States are arranged in the table in the order of the density of their population in 1910.

TABLE IV—POPULATION PER SQUARE MILE, BY STATES: 1910, 1900, AND 1890

States	1910	1900	1890	States	1910	1900	1890
Continental United States .....	30.9	25.6	21.2	Vermont .....	39.0	37.7	36.4
Rhode Island .....	508.5	400.7	323.8	Mississippi .....	38.8	33.5	27.8
Massachusetts .....	418.8	349.0	278.5	Louisiana .....	36.5	30.4	24.6
New Jersey .....	337.7	250.7	192.3	Arkansas .....	30.0	25.0	21.5
Connecticut .....	231.3	188.5	154.8	Minnesota .....	25.7	21.7	18.2
New York .....	191.2	152.5	126.0	Maine .....	24.8	23.2	22.1
Pennsylvania .....	171.0	140.8	117.8	Oklahoma .....	23.9	11.4	3.7
Maryland .....	130.3	119.5	104.9	Kansas .....	20.7	18.0	17.5
Ohio .....	117.0	102.1	90.1	Washington .....	17.1	7.8	5.3
Delaware .....	103.0	94.0	85.8	Nebraska .....	15.6	13.9	13.8
Illinois .....	100.7	86.1	68.3	California .....	16.2	9.5	7.8
Indiana .....	75.3	70.1	61.1	Texas .....	14.8	11.6	8.5
Kentucky .....	57.0	53.4	46.3	Florida .....	13.7	9.6	7.1
Tennessee .....	52.4	48.5	42.4	North Dakota .....	8.2	4.6	2.7
Virginia .....	51.2	46.1	41.1	Colorado .....	7.7	5.2	4.0
West Virginia .....	50.8	40.0	31.8	South Dakota .....	7.6	5.2	4.5
South Carolina .....	49.7	44.0	37.8	Oregon .....	7.0	4.3	3.3
Michigan .....	48.9	42.1	36.4	Utah .....	4.5	3.4	2.6
Missouri .....	47.9	45.2	39.0	Idaho .....	3.9	1.9	1.1
New Hampshire .....	47.7	45.6	41.7	New Mexico .....	2.7	1.6	1.3
North Carolina .....	45.3	38.9	33.2	Montana .....	2.6	1.7	1.0
Georgia .....	44.4	37.7	31.8	Arizona .....	1.8	1.1	0.8
Wisconsin .....	42.2	37.4	30.7	Wyoming .....	1.5	1.0	0.6
Alabama .....	41.7	35.7	29.5	Nevada .....	0.7	0.4	0.4
Iowa .....	40.0	40.2	34.4	District of Columbia ..	5,517.8	4,645.3	3,839.9



MAP CLASSIFYING STATES WITH RESPECT TO THE PERCENTAGE OF INCREASE OF POPULATION 1900 TO 1910.

4 Includes the population of Indian Territory, which was 392,060 in 1900 and 180,182 in 1890.

5 The territory of Oklahoma in 1900 ranked 38 and Indian Territory 39. The present ranking for 1900 includes the population of Indian Territory with that of Oklahoma.

TABLE V—POPULATION OF CITIES. Table five gives the Population of cities of 25,000 and over.

City	Population			Per cent of increase	
	1910	1900	1890	1900 to 1910	1890 to 1900
Akron, Ohio .....	69,067	42,728	27,601	0.65	54.8
Albany, N. Y. ....	100,253	94,151	94,923		
Allentown, Pa. ....	51,913	35,416	25,228	46.6	40.4
Altoona, Pa. ....	52,127	38,973	30,337	33.8	28.5
Amsterdam, N. Y. ....	31,267	20,929	17,336	49.4	20.7
Atlanta, Ga. ....	154,839	89,872	65,533	72.3	37.1
Atlantic City, N. J. ....	46,150	27,838	13,055	65.8	113.2
Auburn, N. Y. ....	34,668	30,345	25,858	14.2	17.4
Augusta, Ga. ....	41,040	39,441	33,300	4.1	18.4
Aurora, Ill. ....	29,807	24,147	19,688	23.4	22.6
Austin, Tex. ....	29,860	22,258	14,575	34.2	52.7
Baltimore, Md. ....	558,485	508,957	434,439	9.7	17.2
Battle Creek, Mich. ....	25,267	18,563	13,197	36.1	40.7
Bay City, Mich. ....	45,166	27,628	27,839	63.5	10.8
Bayonne, N. J. ....	55,545	32,722	19,033	69.7	71.9
Berkeley, Cal. ....	40,434	13,214	5,101	206.0	159.0
Binghamton, N. Y. ....	48,443	39,647	35,005	22.2	13.3
Birmingham, Ala. ....	132,685	38,415	26,178	245.4	46.7
Bloomington, Ill. ....	25,768	23,286	20,484	10.7	13.7
Boston, Mass. ....	670,585	560,802	448,477	19.6	25.1
Bridgeport, Ct. ....	102,054	70,996	48,866	43.7	45.3
Brockton, Mass. ....	56,878	40,063	27,294	42.0	46.8
Brookline, Mass. ....	27,792	19,935	12,103	39.4	64.7
Buffalo, N. Y. ....	423,715	352,287	255,664	20.2	37.8
Butte, Mont. ....	39,165	30,470	10,723	28.5	184.2
Cambridge, Mass. ....	104,839	91,886	70,028	14.1	31.2
Camden, N. J. ....	94,538	75,935	58,313	24.5	30.2
Canton, Ohio ....	50,217	30,667	26,189	63.7	17.1
Cedar Rapids, Iowa ....	32,811	25,656	18,020	27.9	42.4
Charleston, S. C. ....	58,833	55,807	54,955	5.4	1.6
Charlotte, N. C. ....	34,014	18,091	11,557	88.0	56.5
Chattanooga, Tenn. ....	44,604	30,154	29,100	47.9	3.6
Chelsea, Mass. ....	32,452	34,072	27,909	14.8	22.1
Chester, Pa. ....	38,537	33,988	20,226	13.4	68.0
Chicago, Ill. ....	2,185,283	1,698,575	1,099,850	28.7	54.4
Chicopee, Mass. ....	25,401	19,167	14,050	32.5	36.4
Cincinnati, O. ....	364,463	325,902	296,908	11.8	9.8
Clinton, Iowa ....	25,577	22,698	13,619	12.7	66.7
Cleveland, O. ....	560,663	381,768	261,353	46.9	46.1
Colorado Springs, Colo. ....	29,078	21,085	11,140	37.9	89.3
Columbia, S. C. ....	26,319	21,108	15,353	24.7	37.5
Columbus, O. ....	181,548	125,560	88,150	44.6	42.4
Council Bluffs, Iowa ....	29,292	25,802	21,474	13.5	20.2
Covington, Ky. ....	53,270	42,938	37,371	24.1	14.9
Dallas, Tex. ....	92,104	42,638	38,067	116.0	12.0
Danville, Ill. ....	27,871	16,354	11,491	70.4	42.3
Davenport, Iowa ....	43,028	35,254	26,872	22.1	31.2
Dayton, O. ....	116,577	85,223	61,220	36.6	39.4
Decatur, Ill. ....	31,140	20,754	16,841	50.0	23.2
Denver, Colo. ....	213,381	133,859	106,713	59.4	35.4
Des Moines, Iowa ....	86,368	62,139	50,093	39.0	24.0
Detroit, Mich. ....	465,766	285,704	205,876	63.0	23.8
Dubuque, Iowa ....	38,494	36,297	30,311	6.1	19.7
Duluth, Minn. ....	78,466	52,969	33,115	48.1	60.0
Easton, Pa. ....	28,523	25,238	14,481	13.0	74.3
East Orange, N. J. ....	34,371	21,506	13,282	59.8	61.9
East St. Louis, Ill. ....	58,547	29,655	15,169	97.4	95.5
El Paso, Tex. ....	39,279	15,906	10,338	146.9	53.9
Elgin, Ill. ....	25,976	22,433	17,823	15.8	25.9
Elizabeth, N. J. ....	73,409	52,130	37,764	40.8	38.0
Elmira, N. Y. ....	37,176	35,672	30,893	4.2	15.5
Erie, Pa. ....	66,525	52,733	40,634	26.2	29.8
Evansville, Ind. ....	69,647	59,007	50,756	18.0	16.3
Everett, Mass. ....	33,484	24,336	11,068	37.6	119.9
Fall River, Mass. ....	119,295	104,863	74,398	13.8	40.9
Fitchburg, Mass. ....	37,826	31,531	22,037	20.0	43.1
Flint, Mich. ....	38,550	13,103	9,803	194.2	33.7
Fort Wayne, Ind. ....	63,933	45,115	35,393	41.7	27.5
Fort Worth, Tex. ....	73,312	26,688	23,076	174.7	15.7
Galveston, Tex. ....	36,981	37,789	29,084	12.1	29.9
Grand Rapids, Mich. ....	112,571	87,565	60,278	23.6	45.3
Green Bay, Wis. ....	25,236	18,584	9,069	35.1	106.0

City	1910	Population 1900	1890	Per cent of increase	
				1900 to 1910	1890 to 1900
Hamilton, Ohio .....	35,279	23,914	17,665	47.5	36.1
Harrisburg, Pa. ....	64,186	50,167	39,385	27.9	27.4
Hartford, Conn. ....	98,915	79,850	53,230	23.9	50.0
Haverhill, Mass. ....	44,115	37,175	27,412	18.7	35.6
Hazleton, Pa. ....	25,452	14,230	11,872	78.9	19.9
Hoboken, N. J. ....	70,324	59,364	43,648	18.5	36.0
Holyoke, Mass. ....	67,730	45,712	35,637	26.3	28.3
Houston, Tex. ....	78,800	44,633	27,557	76.6	62.0
Huntington, W. Va. ....	31,161	11,923	10,108	161.4	18.0
Indianapolis, Ind. ....	233,650	169,164	105,436	38.1	60.4
Jackson, Mich. ....	31,433	25,180	20,798	24.8	21.1
Jacksonville, Fla. ....	57,699	28,429	17,201	103.0	65.3
Jamestown, N. Y. ....	31,297	22,892	16,038	36.7	42.7
Jersey City, N. J. ....	267,779	206,433	163,003	29.7	26.6
Johnstown, Pa. ....	55,482	35,936	21,805	54.4	64.8
Joliet, Ill. ....	34,670	29,353	23,264	18.1	26.2
Joplin, Mo. ....	32,073	26,023	9,943	23.2	161.7
Kalamazoo, Mich. ....	39,437	24,404	17,853	61.6	36.7
Kansas City, Kans. ....	82,331	51,418	38,316	60.1	34.2
Kansas City, Mo. ....	248,381	163,752	132,716	51.7	23.4
Kingston, N. Y. ....	25,908	24,535	21,261	5.6	15.4
Knoxville Tenn. ....	36,346	32,637	22,535	11.4	44.8
La Crosse, Wis. ....	30,417	28,895	25,090	5.3	15.2
Lancaster, Pa. ....	47,227	41,459	32,011	13.9	29.5
Lansing, Mich. ....	31,229	16,485	13,102	89.4	25.8
Lawrence, Mass. ....	85,892	62,559	44,654	37.3	40.1
Lewiston, Me. ....	26,247	23,761	21,701	10.5	9.5
Lexington, Ky. ....	35,099	26,369	21,567	33.1	22.3
Lima, Ohio ....	30,508	21,723	15,981	40.4	35.9
Lincoln, Nebr. ....	43,973	40,169	55,154	9.5	127.2
Little Rock, Ark. ....	45,941	38,307	26,874	19.9	48.1
Lorain, Ohio ....	28,883	16,028	4,863	80.2	229.6
Los Angeles, Cal. ....	819,198	102,479	50,295	211.5	103.4
Louisville, Ky. ....	223,928	204,771	161,129	9.4	27.1
Lowell, Mass. ....	106,294	94,969	77,696	11.9	22.2
Lynchburg, Va. ....	29,494	18,891	19,709	56.1	14.2
Lynn, Mass. ....	89,336	68,513	55,727	30.4	22.9
Macon, Ga. ....	40,665	23,272	22,746	74.7	2.3
McKeesport, Pa. ....	42,694	34,227	20,741	24.7	65.0
Madison, Wis. ....	25,531	19,164	13,426	33.2	42.7
Malden, Mass. ....	44,404	33,664	23,031	31.9	46.2
Manchester, N. H. ....	70,063	56,987	44,126	22.9	29.1
Memphis, Tenn. ....	131,105	102,320	64,495	28.1	58.6
Meriden, Conn. ....	27,265	24,296	21,652	12.2	12.2
Milwaukee, Wis. ....	373,857	285,315	204,468	31.0	39.5
Minneapolis, Minn. ....	301,408	202,718	164,738	48.7	23.1
Mobile, Ala. ....	51,521	38,469	31,076	33.9	23.8
Montgomery, Ala. ....	38,186	30,346	21,883	25.7	38.7
Mount Vernon, N. Y. ....	30,919	21,228	10,830	45.7	96.0
Muskogee, Okla. ....	25,278	4,254	(4)	494.2	....
Nashua, N. H. ....	28,005	23,898	19,311	8.8	23.8
Nashville, Tenn. ....	110,364	80,865	76,168	36.5	6.2
Newark, N. J. ....	347,469	246,070	181,830	41.2	35.3
Newark, Ohio ....	25,404	18,157	14,270	39.9	27.2
New Bedford, Mass. ....	96,652	62,442	40,733	54.8	53.3
New Britain, Conn. ....	43,916	25,998	16,519	68.9	57.4
Newburgh, N. Y. ....	27,805	24,943	23,087	11.5	8.0
Newcastle, Pa. ....	36,280	28,339	11,600	28.0	144.8
New Haven, Ct. ....	133,605	108,027	81,298	23.7	32.9
New Orleans, La. ....	339,075	287,104	242,039	18.1	18.6
Newport, Ky. ....	30,309	28,301	24,918	7.1	18.6
Newport, R. I. ....	27,149	22,441	19,457	21.0	15.3
New Rochelle, N. Y. ....	28,867	14,720	9,057	96.1	62.5
Newton, Mass. ....	39,806	33,587	24,379	18.5	37.8
New York, N. Y. ....	4,746,883	3,437,202	2,507,414	38.7	37.1
Niagara Falls, N. Y. ....	30,445	19,457	(4)	56.5	....
Norfolk, Va. ....	67,452	46,624	34,871	44.7	33.7
Norristown, Pa. ....	27,875	22,265	19,791	25.2	12.5
Oakland, Cal. ....	150,174	66,960	48,682	124.3	37.5
Ogden, Utah ....	25,580	16,313	14,889	56.8	9.6
Oklahoma City, Okla. ....	64,205	10,087	4,151	539.7	141.8
Omaha, Neb. ....	124,096	102,555	140,452	21.0	27.0
Orange, N. J. ....	29,630	24,141	18,844	22.7	28.1
Oshkosh, Wis. ....	33,062	28,284	22,636	16.9	23.9

City	Population			Per cent of increase	
	1910	1900	1890	1900 to 1910	1890 to 1900
Pasadena, Cal. ....	30,291	9,117	4,882	232.2	86.7
Passaic, N. J. ....	54,773	27,777	13,028	97.2	113.2
Paterson, N. J. ....	125,600	105,171	78,347	19.4	34.2
Pawtucket, R. I. ....	51,622	39,281	27,633	31.5	42.0
Peoria, Ill. ....	66,950	56,100	41,024	19.3	36.7
Perth Amboy, N. J. ....	32,121	17,699	9,512	81.5	86.1
Philadelphia, Pa. ....	1,549,008	1,293,697	1,046,964	19.7	23.6
Pittsburg, Pa. ....	533,905	451,512	343,904	18.2	31.3
Pittsfield, Mass. ....	32,121	21,766	17,281	47.6	26.0
Portland, Me. ....	58,571	50,145	36,425	16.8	37.7
Portland, Ore. ....	207,214	90,428	46,385	129.2	94.9
Portsmouth, Va. ....	33,190	17,427	13,268	90.5	31.3
Poughkeepsie, N. Y. ....	27,936	24,029	22,206	16.3	8.2
Providence, R. I. ....	224,326	175,597	132,146	27.8	32.9
Pueblo, Colo. ....	44,395	28,157	24,558	57.7	14.7
Quincy, Ill. ....	36,587	36,252	31,494	0.9	15.1
Quincy, Mass. ....	32,642	23,899	16,723	36.6	42.9
Racine, Wis. ....	38,002	29,102	21,014	30.6	38.5
Reading, Pa. ....	96,071	78,961	58,661	21.7	34.6
Richmond, Va. ....	127,628	85,050	81,388	50.1	4.5
Roanoke, Va. ....	34,874	21,495	16,159	62.2	33.0
Rochester, N. Y. ....	218,149	162,608	133,896	34.2	21.4
Rockford, Ill. ....	45,401	31,051	23,584	46.2	31.7
Sacramento, Cal. ....	44,696	29,282	26,386	52.6	11.0
Saginaw, Mich. ....	50,510	42,345	46,322	19.3	18.6
St. Joseph, Mo. ....	77,403	102,979	52,324	124.8	96.8
St. Louis, Mo. ....	687,029	575,238	451,770	19.4	27.3
St. Paul, Minn. ....	214,744	163,065	133,156	31.7	22.5
Salem, Mass. ....	43,697	35,966	30,801	21.5	16.7
Salt Lake City, Utah ....	92,777	53,531	44,843	73.3	19.4
San Antonio, Tex. ....	96,614	53,321	37,673	81.2	41.5
San Diego, Cal. ....	39,578	17,700	16,159	123.6	9.5
San Francisco, Cal. ....	416,912	342,732	298,997	21.6	14.6
San Jose, Cal. ....	28,946	21,500	18,060	34.6	19.0
Savannah, Ga. ....	65,064	54,244	42,189	19.9	25.6
Schenectady, N. Y. ....	72,826	51,682	19,902	129.9	59.2
Scranton, Pa. ....	129,867	102,026	75,215	27.3	35.6
Seattle, Wash. ....	237,194	80,671	42,837	194	88.3
Sheboygan, Wis. ....	26,398	22,962	16,359	15.0	40.4
Shenandoah, Pa. ....	25,774	20,321	15,944	26.8	27.5
Shreveport, La. ....	28,015	16,013	11,979	75.0	33.7
Sioux City, Iowa ....	47,828	33,111	37,806	44.4	12.4
Somerville, Mass. ....	77,236	61,643	40,152	25.3	53.5
South Bend, Ind. ....	53,684	35,999	21,819	49.1	65.0
South Omaha, Nebr. ....	26,259	26,001	8,062	1.0	222.5
Spokane, Wash. ....	104,402	36,848	19,922	183.3	85.0
Springfield, Ill. ....	51,678	34,159	24,963	51.3	36.8
Springfield, Mass. ....	88,926	62,059	44,179	43.3	40.5
Springfield, Mo. ....	35,201	23,267	21,850	51.3	6.5
Springfield, Ohio ....	46,921	38,253	31,895	22.7	19.9
Stamford, Conn. ....	25,138	15,997	(4)	57.1	....
Superior, Wis. ....	40,384	31,091	11,983	29.9	159.5
Syracuse, N. Y. ....	137,249	108,334	88,143	26.6	23.0
Tacoma, Wash. ....	83,743	37,714	36,006	122.0	4.7
Tampa, Fla. ....	37,782	15,839	5,532	138.5	186.3
Taunton, Mass. ....	34,259	31,036	25,448	10.4	22.0
Terre Haute, Ind. ....	58,157	36,673	30,217	52.6	21.4
Toledo, O. ....	168,497	131,822	81,434	27.8	61.9
Topeka, Kans. ....	43,684	33,608	31,007	30.0	8.4
Trenton, N. J. ....	96,815	73,307	57,458	32.1	27.6
Troy, N. Y. ....	76,813	60,651	60,956	26.6	10.5
Utica, N. Y. ....	74,419	66,383	44,007	32.0	28.1
Waco, Tex. ....	26,425	20,686	14,445	27.7	43.2
Waltham, Mass. ....	27,834	23,481	18,707	18.5	25.5
Warwick, R. I. ....	26,629	21,316	17,761	24.9	20.0
Washington, D. C. ....	331,069	278,718	230,392	18.8	21.0
Waterbury, Conn. ....	73,141	45,859	28,646	59.5	60.1
Waterloo, Iowa ....	26,698	12,580	6,674	112.2	88.5
Watertown, N. Y. ....	26,730	21,696	14,725	23.2	47.3
West Hoboken, N. J. ....	35,403	23,094	11,665	53.3	98.0
Wheeling, W. Va. ....	41,641	38,878	34,522	7.1	12.4
Wichita, Kans. ....	52,450	24,671	23,853	112.6	3.6
Wilkes-Barre, Pa. ....	67,105	51,721	37,718	29.7	37.1
Williamsport, Pa. ....	31,860	28,757	27,132	10.8	6.0

City	Population			Per cent of increase	
				1900 to 1910	1890 to 1900
Wilmington, Del. ....	87,411	76,508	61,431	14.3	24.5
Wilmington, N. C. ....	25,748	20,976	20,056	22.7	4.6
Woonsocket, R. I. ....	38,125	28,204	20,830	38.7	35.4
Worcester, Mass. ....	145,986	118,421	84,655	23.3	29.9
Yonkers, N. Y. ....	79,803	47,931	32,033	66.5	49.6
York, Pa. ....	44,750	33,708	20,793	32.8	62.1
Youngstown, Ohio ....	79,066	44,885	33,220	76.2	35.1
Zanesville, Ohio ....	28,026	23,538	21,009	19.1	12.0

<sup>1</sup> Decrease.

<sup>2</sup> Estimated population in 1890 of the area of present New York. The population of New York as it existed in 1890 was 1,515,301.

<sup>3</sup> Includes population of Allegheny, which was, in 1900, 129,896, and in 1890, 105,287.

<sup>4</sup> Incorporated since 1890.

The total number of cities having a population of 25,000 and over in continental United States is 228—50 of which have a population of 100,000 or more, and 178 of which a population of 25,000 to 100,000 inhabitants. These cities are given above, with comparative data for 1900 and 1890, together with the percentage of increase for each of the past two decades. Fourteen cities of those included in this list have risen above the 100,000 limit since 1900, namely, Albany, N. Y., Atlanta, Ga., Birmingham, Ala., Bridgeport, Conn., Cambridge, Mass., Dayton, Ohio, Grand Rapids, Mich., Lowell, Mass., Nashville, Tenn., Oakland, Cal., Portland, Oreg., Richmond, Va., Seattle, Wash., and Spokane, Wash. The city of Allegheny, Pa., which was annexed to Pittsburg in 1907, is not included in the list, and the population in 1890 and 1900 is added to that of Pittsburg.

Of the 50 cities of over 100,000, 34 made a greater absolute increase of population during the decade of 1900 to 1910 than during the preceding decade, and 24 made also a greater percentage of increase.

Although the rates for individual cities vary widely, ranging from 6.5 per cent. in the case of Albany, N. Y., to 245.4 per cent. in the case of Birmingham, Ala., it is rather noteworthy that there are 10 important cities which show approximately the same rate of increase during the last decade, viz., Boston (19.6 per cent.), Buffalo (20.2 per cent.), New Orleans (18.1 per cent.), Omaha (21 per cent.), Paterson (19.4 per cent.), Philadelphia (19.7 per cent.), Pittsburg (18.2 per cent.), St. Louis (19.4 per cent.), San Francisco (21.6 per cent.), and Washington (18.8 per cent.).

It should be remembered that in some instances, in the table above, the growth of a city may have been due in part to annexation of suburban territory. Except in the cases of New York and Pittsburg, no allowance has been made for such annexation.

There are now 19 cities having over a quarter of a million inhabitants, 4 of which—Newark, Los Angeles, Minneapolis, and Jersey City—have entered this group since 1900. The rank of the 5 greatest cities has remained the same for twenty years. Seven cities have advanced in rank since 1900; 3 of these—Cleveland, Detroit, and Milwaukee—are situated on the Great Lakes. The greatest advance in rank is shown by Los Angeles, which ranked forty-fourth in 1890, thirty-fourth in 1900, and seventeenth in 1910.

About one-third (69 out of 228) of the cities in continental United States show an increase of over 50 per cent. from 1900 to 1910. Of the northern cities, about one-fifth (35 out of 164) show such an increase; of the southern cities, about two-fifths (18 out of 43); and of the western cities, about three-fourths (16 out of 21).

Of the 22 cities which have more than doubled their population during the past decade, 10 are in the West, 8 in the South, and 4 in the North. Following is a list of the 22 cities, together with their population in 1910 and the rate of increase. The list is arranged in descending order of rate of increase.

TABLE VI—HIGHEST PER CENT. OF INCREASE.

	City	Population 1910	Rate of increase
			1900-1910
1	Oklahoma City, Okla....	64,205	539.7
2	Muskogee, Okla.....	25,278	494.2
3	Birmingham, Ala.....	132,685	245.4
4	Pasadena, Cal.....	30,291	232.2
5	Los Angeles, Cal.....	319,198	211.5
6	Berkeley, Cal.....	40,434	206.0
7	Flint, Mich.....	38,550	194.2
8	Seattle, Wash.....	237,194	194.0
9	Spokane, Wash.....	104,402	183.3
10	Fort Worth, Tex.....	73,312	174.7
11	Huntington, W. Va.....	31,161	161.4
12	El Paso, Tex.....	39,279	146.9
13	Tampa, Fla.....	37,752	138.5
14	Schenectady, N. Y.....	72,826	129.9
15	Portland, Oreg.....	207,214	129.2
16	Oakland, Cal.....	150,174	124.3
17	San Diego, Cal.....	39,578	123.6
18	Tacoma, Wash.....	83,743	122.0
19	Dallas, Tex.....	92,104	116.0
20	Wichita, Kans.....	52,450	112.6
21	Waterloo, Iowa.....	26,698	112.2
22	Jacksonville, Fla.....	57,699	103.0

## TOWNS AND CITIES UNDER 25,000

The following table gives the population of cities and towns of 5000 and above, and of less than 25,000 in population in 1900 and 1910. The list is for thirty-nine of the States only, as at the time of its preparation figures were not available for all the States and Territories.

TABLE VII

	1910	1900
Aberdeen, S. D.....	10,753	4,087
Aberdeen, Wash.....	13,660	3,747
Ablelene, Texas.....	9,204	3,411
Abington, Mass.....	5,455	4,489
Adams, Mass.....	13,026	11,134
Adrian, Mich.....	10,763	9,654
Alameda, Cal.....	23,383	16,464
Albany, Ga.....	8,190	4,606

	1910	1900		1910	1900
Albert Lea, Minn.....	6,192	4,500	Boyer City, Mich.....	5,216	912
Albion, Mich.....	5,833	4,519	Bozeman, Mont.....	5,107	3,419
Alexandria, Ind.....	5,096	7,221	Braddock, Pa.....	19,357	15,654
Alexandria, La.....	11,213	5,648	Bradford, Pa.....	14,544	15,029
Alexandria, Va.....	15,329	14,528	Brainard, Minn.....	8,526	7,524
Alhambra, Cal.....	5,021	.....	Braintree, Mass.....	8,066	5,981
Alliance, Ohio.....	15,083	8,974	Branford, Conn.....	6,047	5,706
Alpena, Mich.....	12,706	11,802	Brazil, Ind.....	9,340	7,786
Alton, Ill.....	17,528	14,210	Brewer, Me.....	5,667	4,835
Amarillo, Texas.....	9,957	1,442	Bridgeton, N. J.....	14,209	13,913
Ambridge, Pa.....	5,205	.....	Bridgewater, Mass.....	7,688	5,806
Americus, Ga.....	8,063	7,674	Bristol, Conn.....	13,502	9,643
Amesbury, Mass.....	9,894	9,473	Bristol, Pa.....	9,256	7,104
Amherst, Mass.....	5,112	5,028	Bristol, R. I.....	8,565	6,901
Anaconda, Mon.....	10,134	9,453	Bristol, Tenn.....	7,148	5,271
Anderson, Ind.....	22,476	20,178	Brookfield, Mo.....	6,749	5,484
Anderson, S. C.....	9,654	5,498	Brookhaven, Miss.....	5,293	2,678
Andover, Mass.....	7,301	6,813	Brownsville, Texas.....	10,517	6,305
Annapolis, Md.....	8,069	8,525	Brownwood, Texas.....	9,967	3,965
Ann Arbor, Mich.....	14,617	14,509	Brunswick, Ga.....	10,182	9,081
Annlston, Ala.....	12,794	9,695	Brunswick, Me.....	6,621	6,806
Ansonia, Conn.....	15,152	12,681	Bucyrus, Ohio.....	8,122	6,560
Antigo, Wis.....	7,196	5,145	Buena Vista, Va.....	3,245	2,388
Appleton, Wis.....	16,773	15,085	Burlington, Ia.....	24,324	23,201
Archbald, Pa.....	7,194	5,396	Burlington, N. J.....	8,336	7,392
Argenta, Ark.....	11,138	.....	Burrillville, R. I.....	7,878	6,317
Arkansas City, Kan.....	7,508	6,140	Butler, Pa.....	20,728	10,853
Arlington, Mass.....	11,187	8,603	Cadillac, Mich.....	8,375	5,997
Asbury Park, N. J.....	10,150	4,148	Calro, Ill.....	14,548	12,566
Asheville, N. C.....	18,762	14,694	Calais, Me.....	6,116	7,655
Ashland, Ky.....	6,888	6,800	Cambridge, Md.....	6,407	5,747
Ashland, Ohio.....	6,795	4,087	Cambridge, Ohio.....	11,327	8,241
Ashland, Ore.....	5,020	2,634	Canal Dover, Ohio.....	6,621	5,422
Ashland, Pa.....	6,855	6,438	Canon, Colo.....	5,162	3,775
Ashland, Wis.....	11,594	13,074	Canton, Ill.....	10,453	6,564
Ashley, Pa.....	5,601	4,046	Cape Girardeau, Mo.....	8,475	4,815
Ashtabula, Ohio.....	18,266	12,949	Carbondale, Ill.....	5,411	3,318
Astoria, Ore.....	9,599	8,381	Carbondale, Pa.....	17,040	13,536
Atchison, Kan.....	16,429	15,722	Caribou, Me.....	5,377	4,758
Athens, Ga.....	14,913	10,245	Carlisle, Pa.....	10,303	9,626
Athens, Ohio.....	5,463	3,066	Carnegie, Pa.....	10,009	7,330
Athol, Mass.....	8,536	7,061	Carrick, Pa.....	6,117	.....
Attleboro, Mass.....	16,215	11,335	Carthage, Mo.....	9,483	9,416
Auburn, Me.....	15,064	12,951	Catasauqua, Pa.....	5,250	3,963
Augusta, Me.....	13,211	11,683	Centerville, Ia.....	6,936	5,256
Austin, Minn.....	6,960	5,474	Central Falls, R. I.....	22,754	18,167
Baker City, Ore.....	6,742	6,663	Centralla, Ill.....	9,680	6,721
Bakersfield, Cal.....	12,727	4,836	Centralla, Wash.....	7,311	1,600
Bangor, Me.....	24,803	21,850	Cedar Falls, Ia.....	5,012	5,319
Bangor, Pa.....	5,369	4,106	Chambersburg, Pa.....	11,800	8,864
Baraboo, Wis.....	6,324	5,751	Champaign, Ill.....	12,421	9,098
Barberton, Ohio.....	9,410	4,354	Chanute, Kansas.....	9,272	4,208
Bath, Me.....	9,386	10,477	Charleroi, Pa.....	9,615	5,930
Baton Rouge, La.....	14,897	11,269	Charles City, Ia.....	5,892	4,227
Beardstown, Ill.....	6,107	4,827	Charleston, Ill.....	5,884	5,488
Beatrice, Neb.....	9,356	7,875	Charleston, W. Va.....	22,996	11,099
Beaumont, Tex.....	20,640	9,427	Charlottesville, Va.....	6,765	6,449
Beaverdam, Wis.....	6,758	5,128	Cheboygan, Mich.....	6,859	6,489
Beaver Falls, Pa.....	12,191	10,054	Chelmsford, Mass.....	5,010	3,984
Bedford, Ind.....	8,716	6,115	Chicago Heights, Ill.....	14,525	5,100
Bellaire, Ohio.....	12,946	9,912	Chillicothe, Mo.....	6,265	6,905
Bellefontaine, Ohio.....	8,238	6,649	Chillicothe, Ohio.....	14,508	12,976
Belleville, Ill.....	21,122	17,484	Chippewa Falls, Wis.....	8,893	8,094
Bellevue, Ky.....	6,683	6,332	Chisholm, Minn.....	7,684	.....
Bellevue, Ohio.....	5,209	4,101	Cicero, Ill.....	14,557	.....
Bellevue, Pa.....	6,323	3,416	Circleville, Ohio.....	6,744	6,991
Bellingham, Wash.....	24,298	.....	Claremont, N. H.....	7,529	6,498
Belmont, Mass.....	5,542	3,929	Clarksburg, W. Va.....	9,201	4,050
Beloit, Wis.....	15,125	10,436	Clarksville, Tenn.....	8,548	9,431
Belvidere, Ill.....	7,253	6,937	Clearfield, Pa.....	6,851	5,081
Bemidji, Minn.....	5,099	2,183	Cleburne, Texas.....	10,364	7,493
Benton Harbor, Mich.....	9,185	6,562	Cleveland, Tenn.....	5,549	3,858
Berlin, N. H.....	11,780	8,886	Clifton Forge City, Va.....	5,748	.....
Berwick, Pa.....	5,357	3,916	Clinton, Ill.....	5,165	4,452
Berwyn, Ill.....	5,841	.....	Clinton, Ind.....	6,229	2,918
Bessemer, Ala.....	10,864	6,358	Clinton, Mass.....	13,075	13,667
Bethlehem, Pa.....	12,837	10,758	Cloquet, Minn.....	7,031	3,072
Beverly, Mass.....	18,650	13,884	Coaldale, Pa.....	5,154	.....
Biddeford, Me.....	17,079	16,145	Coatesville, Pa.....	11,084	5,721
Billings, Mont.....	10,031	3,221	Coeur D'Alene, Ida.....	7,291	508
Biloxi, Miss.....	7,988	5,467	Coffeyville, Kansas.....	12,687	4,953
Blackstone, Mass.....	5,648	5,721	Cohoes, N. Y.....	24,709	23,910
Blakely, Pa.....	5,345	3,915	Coldwater, Mich.....	5,946	6,216
Bloomfield, N. J.....	15,070	9,668	Collinsville, Ill.....	7,478	4,021
Bloomington, Ind.....	8,838	6,460	Columbia, Mo.....	9,662	5,651
Bloomsburg, Pa.....	7,413	6,170	Columbia, Pa.....	11,454	12,316
Bluefield, W. Va.....	11,188	4,644	Columbia, Tenn.....	5,754	6,052
Blue Island, Ill.....	8,043	6,114	Columbus, Ga.....	20,554	17,614
Boise, Ida.....	17,358	5,957	Columbus, Ind.....	8,813	8,130
Boone, Ia.....	10,347	8,880	Columbus, Miss.....	8,988	6,484
Boulder, Colo.....	9,539	6,150	Columbus, Neb.....	5,014	3,523
Bowling Green, Ky.....	9,173	8,226	Concord, Mass.....	6,421	5,652
Bowling Green, Ohio.....	5,222	5,067	Concord, N. H.....	21,497	13,632

	1910	1900		1910	1900
Concord, N. C.	8,715	7,910	Florence, Ala.	6,689	6,478
Conneaut, Ohio	8,319	7,133	Florence, S. C.	7,057	4,647
Connellsville, Pa.	12,845	7,160	Fond du Lac, Wis.	18,797	15,110
Connorsville, Ind.	7,738	6,836	Forest City, Pa.	5,749	4,279
Conshohocken, Pa.	7,480	5,762	Forest Park, Ill.	6,594	4,085
Coraopolis, Pa.	5,252	2,555	Ft. Collins, Colo.	8,210	3,053
Cordele, Ga.	5,883	3,473	Ft. Dodge, Ia.	15,543	12,162
Corinth, Miss.	5,020	3,661	Ft. Madison, Ia.	8,900	9,278
Corning, N. Y.	13,730	11,061	Ft. Scott, Kansas	10,463	10,322
Corpus Christi, Texas	8,222	4,703	Fort Smith, Ark.	23,975	11,587
Corry, Pa.	5,991	5,369	Fostoria, Ohio.	9,597	7,730
Corsicana, Texas	9,749	9,313	Frankfort, Ind.	8,634	7,100
Cortland, N. Y.	11,504	9,014	Frankfort, Ky.	10,465	9,487
Coshocton, Ohio	9,603	6,473	Franklin, Mass.	5,641	5,017
Coventry, R. I.	5,848	5,279	Franklin, N. H.	6,132	5,846
Cranston, R. I.	21,107	13,343	Franklin, Pa.	9,767	7,317
Crawfordsville, Ind.	9,371	6,649	Frederick, Md.	10,411	9,296
Creston, Ia.	6,924	7,752	Fredericksburg, Va.	5,874	5,068
Cripple Creek, Colo.	6,206	10,147	Freeland, Pa.	6,197	5,254
Crookston, Minn.	7,559	5,359	Freeport, Ill.	17,567	13,258
Crowley, La.	5,099	4,214	Fremont, Neb.	8,718	7,241
Cumberland, Md.	21,839	17,128	Fremont, Ohio.	9,939	8,439
Cumberland, R. I.	10,107	8,925	Fresno, Cal.	24,892	12,470
Dalton, Ga.	5,324	4,315	Frostburg, Md.	6,028	5,274
Danbury, Conn.	23,502	19,474	Fulton, Conn.	10,480	5,281
Dansfield, Mass.	5,183	4,006	Fulton, Mo.	5,228	4,883
Danvers, Mass.	9,407	8,542	Gadsden, Ala.	10,557	4,282
Danville, Ky.	5,420	4,285	Gainesville, Fla.	6,183	3,633
Danville, Pa.	7,517	8,042	Gainesville, Ga.	5,925	4,382
Danville, Va.	19,020	16,520	Gainesville, Texas	7,824	7,874
Darby, Pa.	6,305	3,429	Galena, Kansas	6,096	10,155
Dayton, Ky.	6,979	6,104	Galesburg, Ill.	22,089	18,607
Dedham, Mass.	9,284	7,467	Gallion, Ohio.	7,214	7,282
Defiance, Ohio.	7,327	7,579	Gallipolis, Ohio.	5,560	5,432
Dekalb, Ill.	8,102	5,904	Gardiner, Me.	5,311	5,501
Delaware, Ohio.	9,076	7,940	Gardner, Mass.	14,699	10,813
Delphos, Ohio.	5,038	4,517	Garfield, N. J.	10,213	3,504
Denison, Texas	13,632	11,307	Gary, Ind.	16,802	5,600
Derby, Conn.	8,991	7,930	Gastonia, N. C.	5,759	4,610
Derry, N. H.	5,123	3,583	Geneva, N. Y.	12,446	10,433
Dickson, Pa.	9,331	4,948	Georgetown, S. C.	5,530	4,138
Dixon, Ill.	7,216	7,917	Gilberton, Pa.	5,401	4,373
Donora, Pa.	8,174	.....	Glassport, Pa.	5,540	.....
Dothan, Ala.	7,016	3,275	Glenns Falls, N. Y.	15,243	12,613
Dover, N. H.	13,247	13,207	Gloucester, N. J.	9,462	6,840
Dover, N. J.	7,468	5,938	Gloversville, N. Y.	20,642	18,349
Dowagiac, Mich.	5,088	4,151	Goldsboro, N. C.	6,107	5,877
Dublin, Ga.	5,795	2,987	Goshen, Ind.	8,514	7,810
Dubois, Pa.	12,623	9,375	Grafton, Mass.	5,705	4,869
Dunkirk, N. Y.	17,221	11,616	Grafton, W. Va.	7,563	5,650
Dunmore, Pa.	17,615	12,583	Grand Haven, Mich.	5,856	4,743
Duquesne, Pa.	15,727	9,036	Grand Island, Neb.	10,326	7,554
Duquoin, Ill.	5,454	4,353	Grand Junction, Colo.	7,754	3,503
Durham, N. C.	18,241	6,679	Grand Rapids, Wisc.	6,521	4,493
Duryea, Pa.	7,487	5,541	Granite, Ill.	9,903	3,122
East Chicago, Ind.	19,098	3,411	Great Barrington, Mass.	5,926	5,854
East Cleveland, Ohio	9,179	2,757	Greater Punxsutawney, Pa.	9,058	6,746
East Conemaugh, Pa.	5,046	2,175	Great Falls, Mon.	13,948	14,930
Easthampton, Mass.	8,524	5,603	Greeley, Colo.	8,179	3,023
E. Hartford, Conn.	8,138	6,406	Greenfield, Mass.	10,427	7,927
East Liverpool, Ohio	20,387	16,485	Greensboro, N. C.	15,895	10,035
Easton, Mass.	5,139	4,887	Greensburg, Ind.	5,420	5,034
East Pittsburg, Pa.	5,615	2,883	Greensburg, Pa.	13,012	6,508
E. Providence, R. I.	15,808	12,138	Greenville, Miss.	9,610	6,642
Eau Claire, Wis.	18,310	17,517	Greenville, Ohio.	6,237	5,501
Edwardsville, Ill.	5,014	4,157	Greenville, Pa.	5,909	4,814
Edwardsville, Pa.	8,407	5,165	Greenville, S. C.	15,741	11,860
Elberton, Ga.	6,483	3,834	Greenville, Texas	8,850	6,860
Elizabeth, N. C.	8,412	6,348	Greenwich, Conn.	16,463	12,172
Elkhart, Ind.	19,282	15,184	Greenwood, Miss.	5,836	3,026
Elkins, W. Va.	5,260	2,016	Greenwood, S. C.	6,614	4,824
Elwood, Ind.	11,028	12,950	Griffin, Ga.	7,478	6,857
Elyria, Ohio.	14,825	8,791	Grinnell, Ia.	5,036	3,860
Emporia, Kansas	9,058	8,223	Groton, Conn.	6,495	5,962
Enfield, Conn.	9,719	6,699	Gulfport, Miss.	6,388	1,060
Englewood, N. J.	9,924	6,253	Guttenberg, N. J.	5,647	3,825
Ennis, Texas	5,669	4,919	Hackensack, N. J.	14,050	9,443
Escanaba, Mich.	13,191	9,549	Hagerstown, Md.	16,507	13,591
Etna, Pa.	5,830	5,384	Hamden, Conn.	5,850	4,626
Eugene, Oregon	9,009	3,236	Hammond, Ind.	20,925	12,776
Eureka, Cal.	11,845	7,327	Hammononton, N. J.	5,088	3,481
Evanston, Ill.	24,978	19,259	Hampton City, Va.	5,505	2,764
Everett, Wash.	24,814	7,838	Hancock, Mich.	8,981	4,050
Fairbault, Minn.	9,001	7,868	Hannibal, Mo.	18,341	12,780
Fairbury, Neb.	5,294	3,140	Hanover, Pa.	7,057	5,302
Fairfield, Conn.	6,134	4,489	Harrisburg, Ill.	5,309	2,202
Fairhaven, Mass.	5,122	2,567	Harrison, N. J.	14,498	10,596
Fairmont, W. Va.	9,711	5,655	Hartford, Ind.	6,187	5,912
Fayetteville, N. C.	7,045	4,670	Harvey, Ill.	7,227	5,395
Fergus Falls, Minn.	6,887	6,072	Hastings, Neb.	9,338	7,188
Findlay, Ohio	14,858	17,613	Hattiesburg, Miss.	11,732	4,175
Fitzgerald, Ga.	5,795	1,817	Helena, Ark.	8,772	5,550
Flat River, Mo.	5,112	....			

	1910	1900		1910	1900
Helena, Mont.....	12,515	10,770	Lehighton, Pa.....	5,316	4,629
Henderson, Ky.....	11,452	10,272	Leominster, Mass.....	17,580	12,392
Herrin, Ill.....	6,861	1,659	Lewiston, Ida.....	6,043	2,425
Hibbing, Minn.....	8,832	2,481	Lewistown, Pa.....	8,166	4,451
High Point, N. C.....	9,525	4,163	Lexington, Mo.....	5,242	4,190
Hillsboro, Texas.....	6,115	5,346	Lincoln, Ill.....	10,892	8,962
Hillsdale, Mich.....	5,001	4,151	Lincoln, R. I.....	9,825	8,937
Holland, Mich.....	10,490	7,790	Linton, Ind.....	5,906	3,071
Homestead, Pa.....	18,713	12,554	Little Falls, Minn.....	6,078	5,774
Hopkinsville, Ky.....	9,419	7,280	Little Falls, N. Y.....	12,273	10,381
Hoquiam, Wash.....	8,171	2,608	Litchfield, Ill.....	5,971	5,918
Hornell, N. Y.....	13,617	11,918	Livingston, Mont.....	5,359	2,778
Hot Springs, Ark.....	14,484	9,973	Lock Haven, Pa.....	7,772	7,210
Houghton, Mich.....	5,113	3,359	Lockport, N. Y.....	17,970	16,581
Houlton, Me.....	5,845	4,686	Logansport, Ind.....	19,050	16,204
Houma, La.....	5,024	3,212	Long Beach, Cal.....	17,809	2,252
Houston Heights, Tex.....	6,984	8,800	Long Branch, N. J.....	13,298	8,872
Hudson, Mass.....	6,743	5,454	Longview, Tex.....	6,155	3,591
Hudson, N. Y.....	11,417	9,528	Ludington, Mich.....	9,152	7,166
Huntington, Ind.....	10,272	9,491	Luzerne, Pa.....	5,426	3,817
Huntingdon, Pa.....	8,261	6,053	McComb, Miss.....	6,237	4,477
Huntington, Conn.....	6,545	5,572	McKees Rocks, Pa.....	14,702	6,352
Huntsville, Ala.....	7,611	8,068	Macomb, Ill.....	5,774	5,375
Huron, S. D.....	5,791	2,793	Madison, Ill.....	5,046	1,979
Hutchinson, Kan.....	16,364	9,379	Madison, Ind.....	6,934	7,835
Independence, Kan.....	10,480	4,851	Madisonville, Ohio.....	5,193	3,140
Independence, Mo.....	9,859	6,974	Mahanoy City, Pa.....	15,936	13,504
Indiana, Pa.....	5,749	4,142	Manistee, Mich.....	12,381	14,260
Iola, Kan.....	9,082	5,791	Manitowoc, Wis.....	13,027	11,786
Ionia, Mich.....	5,050	5,209	Manchester, Conn.....	13,641	10,601
Iowa City, Ia.....	10,091	7,987	Manhattan, Kan.....	5,722	3,438
Iron Mountain, Mich.....	9,216	9,242	Mankato, Minn.....	10,365	10,599
Ironton, Ohio.....	13,147	11,868	Mansfield, Mass.....	5,183	4,006
Ironwood, Mich.....	12,821	9,705	Mansfield, Ohio.....	20,768	17,640
Irvington, N. J.....	11,877	5,255	Marblehead, Mass.....	7,438	7,582
Ishpeming, Mich.....	12,448	13,255	Marietta, Ga.....	5,949	4,446
Ithaca, N. Y.....	14,802	13,136	Marietta, Ohio.....	12,923	13,348
Jackson, Miss.....	21,262	7,816	Marinetta, Wis.....	14,610	16,195
Jackson, Ohio.....	5,468	4,672	Marion, Ill.....	7,093	2,510
Jackson, Tenn.....	15,779	14,511	Marion, Ind.....	19,359	17,337
Jacksonville, Ill.....	15,326	15,078	Marion, Ohio.....	18,232	11,863
Janesville, Wis.....	13,894	13,185	Marlboro, Mass.....	14,579	13,609
Jeanette, Pa.....	8,077	5,885	Marquette, Mich.....	11,503	10,058
Jefferson City, Mo.....	11,850	9,684	Marshall, Tex.....	11,452	7,855
Jeffersonville, Ind.....	10,412	10,774	Marshalltown, Ia.....	13,374	11,544
Jersey Shore, Pa.....	5,381	3,070	Marshfield, Wis.....	6,783	5,240
Johnson City, Tenn.....	8,502	4,645	Martinsburg, W. Va.....	10,698	7,564
Johnston, R. I.....	5,935	4,305	Martins Ferry, Ohio.....	9,133	7,760
Johnstown, N. Y.....	10,447	10,130	Marysville, Cal.....	5,430	3,497
Jonesboro, Ark.....	7,123	4,508	Mason, Ia.....	11,230	6,746
Junction City, Kan.....	5,598	4,695	Massillon, Ohio.....	13,879	11,944
Junlata, Pa.....	5,285	1,709	Mankato, Minn.....	10,365	10,599
Kalspel, Mont.....	5,549	2,526	Mayfield, Ky.....	5,916	4,081
Kane, Pa.....	6,626	5,296	Maynard, Mass.....	6,390	3,142
Kankakee, Ill.....	13,986	13,595	Maysville, Ky.....	6,141	6,423
Kearney, Neb.....	6,202	5,634	Maywood, Ill.....	8,033	4,532
Kearney, N. J.....	18,659	10,896	Meadville, Pa.....	12,780	10,291
Keene, N. H.....	10,068	9,165	Medford, Mass.....	23,150	18,244
Kenosha, Wis.....	21,371	11,606	Medford, Ore.....	8,840	1,791
Kenton, Ohio.....	7,185	6,852	Melrose, Mass.....	15,715	12,962
Keokuk, Ia.....	14,008	14,641	Menominee, Mich.....	10,507	12,618
Kewanee, Ill.....	9,307	8,382	Menominee, Wis.....	5,036	5,655
Key West, Fla.....	19,945	17,114	Meridan, Miss.....	23,285	14,050
Killingly, Conn.....	6,564	6,835	Merrill, Wis.....	8,689	8,537
Kingston, Pa.....	6,449	3,846	Methuen, Mass.....	11,448	7,512
Kinston, N. C.....	6,995	4,106	Menasha, Wis.....	6,081	5,589
Kirksville, Mo.....	6,347	5,966	Mexico, Mo.....	5,939	5,099
Knoxville, Pa.....	5,651	3,511	Miami, Fla.....	5,471	1,681
Kokomo, Ind.....	17,010	10,609	Michigan City, Ind.....	19,027	14,850
Lackawanna, N. Y.....	14,549	.....	Middleboro, Mass.....	8,214	6,885
Laconia, N. H.....	10,183	8,042	Middlesboro, Ky.....	7,305	4,162
Lafayette, Ind.....	20,081	18,116	Middletown, Conn.....	20,749	17,486
Lafayette, La.....	6,392	3,314	Middletown, N. Y.....	15,313	14,522
La Grange, Ga.....	5,587	4,274	Middletown, Ohio.....	13,152	9,215
La Grange, Ill.....	5,282	3,969	Middletown, Pa.....	5,374	5,608
Lake Charles, La.....	11,449	6,880	Millford, Mass.....	13,055	11,376
Lake City, Fla.....	5,032	4,013	Millvale, Pa.....	7,861	6,736
Lakewood, Ohio.....	15,181	3,355	Millville, N. J.....	12,451	10,583
Lancaster, Ohio.....	13,093	8,991	Milton, Mass.....	7,924	6,578
Lansford, Pa.....	8,321	4,888	Milton, Pa.....	7,460	6,175
Laporte, Ind.....	10,525	7,113	Minersville, Pa.....	7,240	4,815
Laredo, Tex.....	14,855	13,429	Mishawaka, Ind.....	11,886	5,560
Larksville, Pa.....	9,288	.....	Missoula, Mont.....	12,869	4,366
Lasalle, Ill.....	11,537	10,446	Mitchell, S. D.....	6,515	4,055
Latrobe, Pa.....	8,777	4,614	Moberly, Mo.....	10,923	8,012
Laurel, Miss.....	8,465	3,193	Moline, Ill.....	24,199	17,248
Laurium, Mich.....	8,537	5,643	Monessen, Pa.....	11,775	2,197
Lawrence, Kan.....	12,374	10,862	Monmouth, Ill.....	9,128	7,460
Lead, S. D.....	8,392	6,210	Monongahela, Pa.....	7,698	5,173
Leadville, Colo.....	7,508	12,455	Monroe, La.....	10,209	5,423
Leavenworth, Kan.....	19,363	20,735	Monroe, Mich.....	6,893	5,043
Lebanon, Ind.....	5,474	4,465	Montague, Mass.....	6,866	6,150
Lebanon, N. H.....	5,718	4,365	Montclair, N. J.....	21,550	13,963
Lebanon, Pa.....	19,240	17,628	Morgan, La.....	5,477	2,332

	1910	1900		1910	1900
Morgantown, W. Va.	9,150	1,895	Pana, Ill.	6,055	5,530
Morristown, N. J.	12,507	11,267	Paragould, Ark.	5,248	3,324
Moundsville, W. Va.	8,918	8,862	Paris, Ill.	7,664	6,105
Mt. Carmel, Ill.	6,984	4,811	Paris, Ky.	5,859	4,603
Mt. Carmel, Pa.	17,532	13,179	Paris, Tex.	11,269	9,358
Mt. Clemens, Mich.	7,707	6,576	Park City, Tenn.	5,126	.....
Mt. Pleasant, Pa.	5,812	4,745	Parkersburg, W. Va.	17,842	11,703
Mt. Vernon, Ill.	8,007	5,216	Parsons, Kan.	12,463	7,682
Mt. Vernon, Ind.	5,563	5,132	Peabody, Mass.	15,721	11,523
Mt. Vernon, Ohio	9,087	6,633	Pekin, Ill.	9,897	8,420
Muncie, Ind.	24,005	20,942	Pensacola, Fla.	22,982	17,747
Munhall, Pa.	5,185	.....	Peru, Ill.	7,984	6,863
Murphysboro, Ill.	7,485	6,463	Peru, Ind.	10,910	8,463
Muscatine, Ia.	16,178	14,073	Petaluma, Cal.	5,880	3,871
Muskegon, Mich.	24,062	20,818	Petersburg, Va.	24,127	21,810
Nanticoke, Pa.	18,877	12,116	Phillipsburg, N. J.	13,903	10,052
Napa, Cal.	5,791	4,036	Phoenixville, Pa.	10,743	9,196
Natchez, Miss.	11,791	12,210	Pine Bluff, Ark.	15,102	11,496
Natick, Mass.	9,866	9,488	Piqua, O.	13,388	12,172
Naugatuck, Conn.	12,722	10,541	Pittsburg, Kan.	14,755	10,112
Nebraska City, Neb.	5,488	7,380	Pittston, Pa.	16,267	12,558
Needham, Mass.	5,026	4,016	Plainfield, Conn.	6,719	4,821
Negaunee, Mich.	8,460	6,935	Plainfield, N. J.	20,550	15,369
Neenah, Wis.	5,734	5,954	Plattsburg, N. Y.	11,138	8,434
Nelsonville, Ohio.	6,082	5,421	Plymouth, Conn.	5,021	2,828
Nevada, Mo.	7,176	7,461	Plymouth, Mass.	12,141	9,592
New Albany, Ind.	20,629	20,628	Plymouth, Pa.	16,998	13,649
Newberne, N. C.	9,961	9,090	Pocatello, Ida.	9,110	4,046
Newberry, S. C.	5,028	4,607	Pomona, Cal.	10,207	5,526
New Brighton, Pa.	6,329	6,820	Pontiac, Ill.	6,090	4,266
New Brunswick, N. J.	23,388	20,006	Pontiac, Mich.	14,632	9,769
Newburgh, Ohio.	5,813	5,909	Poplar Bluff, Mo.	6,916	4,321
Newburyport, Mass.	14,949	14,478	Portage, Wis.	5,440	5,459
New Castle, Ind.	9,446	3,406	Port Arthur, Tex.	7,663	900
New Decatur, Ala.	6,118	4,437	Port Huron, Mich.	18,663	19,158
New Iberia, La.	7,499	6,815	Port Jervis, N. Y.	9,564	9,385
New Kensington, Pa.	7,707	4,665	Portland, Ind.	5,130	4,798
New London, Conn.	19,659	17,548	Portsmouth, O.	23,481	17,870
Newman, Ga.	5,548	3,654	Portsmouth, N. H.	11,269	10,637
New Milford, Conn.	5,010	4,804	Pottstown, Pa.	15,599	13,696
New Philadelphia Ohio.	8,542	6,213	Pottsville, Pa.	20,236	15,710
Newport News, Va.	20,205	19,635	Presque Isle, Me.	5,179	3,804
Newton, Kan.	7,862	6,208	Princeton, Ind.	6,448	6,041
New Ulm, Minn.	5,648	5,403	Princeton, N. J.	5,136	3,899
Niles, Mich.	5,156	4,207	Putnam, Conn.	7,280	7,348
Niles, Ohio.	8,361	7,468	Radford, Va.	4,202	3,344
Noblesville, Ind.	5,073	4,792	Rahway, N. J.	9,337	7,935
Norfolk, Neb.	6,025	3,883	Raleigh, N. C.	19,218	13,643
North Adams, Mass.	22,019	24,200	Rankin, Pa.	6,042	2,775
North Andover, Mass.	5,529	4,243	Ravenna, O.	5,810	4,003
North Attleboro, Mass.	9,562	7,253	Reading, Mass.	5,818	4,969
North Braddock, Pa.	11,824	6,535	Red Bank, N. J.	7,398	5,428
Northbridge, Mass.	8,807	7,036	Redlands, Cal.	10,449	4,797
Northampton, Mass.	19,481	18,543	Red Wing, Minn.	9,048	7,525
Northampton, Pa.	8,729	.....	Rensselaer, N. Y.	10,711	7,466
North Plainfield, N. J.	6,117	5,009	Revere, Mass.	18,219	10,395
North Providence, R. I.	5,407	3,016	Rhinelander, Wis.	5,637	4,998
North Tonawanda, N. Y.	11,955	9,069	Richmond, Cal.	6,802	.....
North Yakima, Wash.	14,082	3,154	Richmond, Ind.	22,324	18,226
Norwalk, Conn.	24,211	19,932	Richmond, Ky.	5,340	4,653
Norwalk, Ohio.	7,858	7,074	Ridgewood, N. J.	5,416	2,685
Norwood, Mass.	8,014	5,480	Ridgway, Pa.	5,408	3,515
Norwood, Ohio.	16,185	6,480	Riverside, Cal.	15,212	7,973
Nutley, N. J.	6,009	3,682	Rochester, Minn.	7,844	6,843
Oak Park, Ill.	19,444	.....	Rochester, N. H.	8,868	8,466
Oconto, Wis.	5,629	5,646	Rochester, Pa.	5,903	4,688
Oelwein, Ia.	6,028	5,142	Rock Hill, S. C.	7,216	5,485
Ogdensburg, N. Y.	15,933	12,633	Rock Island, Ill.	24,335	19,493
Oil City, Pa.	15,657	13,264	Rockland, Mass.	6,928	5,327
Old Forge, Pa.	11,324	5,630	Rockland, Me.	8,174	8,150
Old Town, Me.	6,317	5,763	Rocky Mount, N. C.	8,051	2,937
Olean, N. Y.	14,743	9,462	Rome, Ga.	12,099	7,291
Olney, Ill.	5,011	4,260	Rome, N. Y.	20,497	15,343
Olympia, Wash.	6,996	3,863	Roosevelt, N. J.	5,786	.....
Olyphant, Pa.	8,305	6,180	Rosedale, Kan.	5,960	3,270
Onelda, N. Y.	8,317	6,364	Rumford, Me.	6,777	3,770
Oneonta, N. Y.	9,491	7,147	Rumford Falls, Me.	5,427	2,595
Orange, Conn.	11,272	6,995	Rutherford, N. J.	7,045	4,411
Orange, Mass.	5,282	5,520	Saco, Me.	6,583	6,122
Orange, Tex.	5,527	3,835	St. Augustine, Fla.	5,494	4,272
Orangeburg, S. C.	5,906	4,455	St. Bernard, O.	5,002	3,384
Oskaloosa, Ia.	9,466	9,212	St. Charles, Mo.	9,437	7,982
Oswego, N. Y.	23,368	22,199	St. Clair, Allegheny Co., Pa.	5,640	.....
Ottawa, Ill.	9,535	10,588	St. Clair, Schuylkill Co., Pa.	6,455	4,638
Ottawa, Kan.	7,650	6,934	St. Cloud, Minn.	10,600	8,663
Ottumwa, Ia.	22,012	18,197	St. Joseph, Mich.	5,936	5,165
Owatonna, Minn.	5,658	5,661	St. Marys, O.	5,732	5,359
Owensboro, Ky.	16,011	13,189	St. Marys, Pa.	6,346	4,295
Owosso, Mich.	9,639	8,686	Salem, N. J.	6,614	5,811
Paducah, Ky.	22,760	19,446	Salem, N. C.	5,533	3,642
Painesville, O.	5,501	5,024	Salem, O.	8,943	7,582
Palestine, Tex.	10,482	8,297	Salem, Ore.	14,094	4,258
Palmer, Mass.	8,610	7,801	Salina, Kan.	9,688	6,074

	1910	1900		1910	1900
Sallsbury, Md.....	6,690	4,277	Tyrone, Pa.....	7,176	5,947
Sallsbury, N. C.....	7,153	6,277	Union, N. J.....	21,023	15,187
San Angelo, Tex.....	10,321	.....	Union, S. C.....	5,623	5,400
San Bernardino, Cal.....	12,779	6,160	Uniontown, Pa.....	13,344	7,344
Sandusky, O.....	19,989	19,664	Urbana, Ill.....	8,245	5,728
Sanford, Me.....	9,049	6,078	Urbana, O.....	7,739	6,808
San Luis Obispo, Cal.....	5,157	3,021	Valdosta, Ga.....	7,666	5,613
San Rafael, Cal.....	5,934	3,879	Vallejo, Cal.....	11,340	7,965
Santa Ana, Cal.....	8,429	4,933	Valparaiso, Ind.....	6,987	6,280
Santa Barbara, Cal.....	11,659	6,587	Vancouver, Wash.....	9,300	3,126
Santa Cruz, Cal.....	11,146	5,659	Van Wert, O.....	7,157	6,422
Santa Monica, Cal.....	7,847	3,057	Vernon, Conn.....	9,087	8,483
Santa Rosa, Cal.....	7,817	6,673	Vicksburg, Miss.....	20,814	14,824
Saugus, Mass.....	8,047	5,084	Vincennes, Ind.....	14,895	10,249
Sault Ste. Marie, Mich.....	12,615	10,539	Vineland, N. J.....	5,282	4,370
Sayre, Pa.....	6,426	5,243	Virginia, Minn.....	10,473	2,962
Scottsdale, Pa.....	5,456	4,261	Wabash, Ind.....	8,687	8,618
Sedalia, Mo.....	17,822	15,231	Wakefield, Mass.....	11,404	9,290
Selma, Ala.....	13,649	8,713	Walla Walla, Wash.....	19,364	10,049
Seymour, Ind.....	6,306	6,445	Wallingford, Conn.....	11,155	9,001
Shamokin, Pa.....	19,588	18,202	Wapakoneta, O.....	5,349	3,915
Sharon, Pa.....	15,270	8,916	Ware, Mass.....	8,774	8,263
Sharpsburg, Pa.....	8,153	6,842	Warren, O.....	11,081	8,529
Shelbyville, Ind.....	9,500	7,169	Warren, Pa.....	11,080	8,043
Sherman, Tex.....	12,412	10,243	Warren, R. I.....	6,565	5,108
Sidney, O.....	6,607	5,688	Washington, Ind.....	7,854	8,551
Sioux Falls, S. D.....	14,094	10,266	Washington, N. C.....	6,211	4,842
Skowhegan, Me.....	5,341	5,180	Washington, Pa.....	18,778	7,670
Somerville, N. J.....	5,060	4,834	Washington Court House, O.....	7,277	5,751
Somersworth, N. H.....	6,704	7,023	Watertown, Mass.....	12,875	9,706
South Amboy, N. J.....	7,007	6,349	Watertown, S. D.....	7,010	3,352
South Bethlehem, Pa.....	19,973	13,241	Watertown, Wis.....	8,829	8,437
Southbridge, Mass.....	12,592	10,025	Waterville, Me.....	11,458	9,477
Southington, Conn.....	6,516	5,890	Watervliet, N. Y.....	15,074	14,321
South Kingston, R. I.....	5,176	4,972	Waukegan, Ill.....	16,069	9,426
South Milwaukee, Wis.....	6,092	3,392	Waukesha, Wis.....	8,740	7,419
South Norwalk, Conn.....	8,968	6,591	Wausau, Wis.....	16,560	12,354
South Orange, N. J.....	6,014	4,608	Waxahachie, Tex.....	6,205	4,215
South Portland, Me.....	7,471	6,287	Waycross, Ga.....	14,485	5,919
South Sharon, Pa.....	10,190	.....	Waynesboro, Pa.....	7,199	5,396
Spartanburg, S. C.....	17,517	11,395	Weatherford, Tex.....	5,074	4,786
Spencer, Mass.....	6,740	7,627	Webb City, Mo.....	11,817	9,201
Spring Valley, Ill.....	7,035	6,214	Webster, Ia.....	5,208	4,613
Stauton, Ill.....	5,048	2,786	Webster, Mass.....	11,509	8,804
Staunton, Va.....	10,604	7,289	Webster Groves, Mo.....	7,080	1,895
Steelton, Pa.....	14,246	12,086	Wellesley, Mass.....	5,413	5,072
Sterling, Ill.....	7,467	6,309	Wellington, Kan.....	7,034	4,245
Stebenville, O.....	22,391	14,349	Wellston, Mo.....	7,312	.....
Stevens Point, Wis.....	8,692	9,524	Wellston, O.....	6,875	8,045
Stillwater, Minn.....	10,198	12,318	Wellsville, O.....	7,769	6,146
Stockton, Cal.....	23,253	17,506	West Allis, Wis.....	6,645	.....
Stoneham, Mass.....	7,090	6,197	West Berwick, Pa.....	5,512	.....
Stonington, Conn.....	9,154	8,540	Westboro, Mass.....	5,446	5,400
Stoughton, Mass.....	6,316	5,442	Westbrook, Me.....	8,281	7,283
Stafford, Conn.....	5,233	4,297	West Chester, Pa.....	11,767	9,524
Stratford, Conn.....	5,712	3,657	Westerly, R. I.....	6,696	7,541
Streator, Ill.....	14,253	14,079	Westfield, Mass.....	16,044	12,810
Suffolk, Va.....	7,008	3,827	Westfield, N. J.....	6,420	.....
Sulphur Springs, Tex.....	5,151	3,635	West New York, N. J.....	13,560	5,267
Summit, N. J.....	7,500	5,302	West Orange, N. J.....	10,980	6,889
Sumter, S. C.....	8,109	5,673	West Pittston, Pa.....	6,848	5,846
Sunbury, Pa.....	13,770	9,810	Westbrook, Me.....	8,281	7,223
Swissvale, Pa.....	7,381	1,716	West Springfield, Mass.....	9,224	7,105
Swoyers, Pa.....	5,396	2,264	West Tampa, Fla.....	8,258	2,355
Talladega, Ala.....	5,854	5,056	Weymouth, Mass.....	12,895	11,324
Tallahassee, Fla.....	5,018	2,981	Whiting, Ind.....	6,587	3,983
Tamaqua, Pa.....	9,462	7,267	Whitman, Mass.....	7,292	6,155
Tarentum, Pa.....	7,414	5,472	Wichita Falls, Tex.....	8,200	2,480
Taylor, Pa.....	9,060	4,215	Wilkinsburg, Pa.....	18,924	11,886
Taylor, Tex.....	5,314	4,211	Williamantic, Conn.....	11,230	8,937
Taylorville, Ill.....	5,446	4,248	Wilmerding, Pa.....	6,133	4,179
Temple, Tex.....	10,993	7,065	Wilson, N. C.....	6,717	3,525
Terrell, Tex.....	7,050	6,330	Winchester, Conn.....	8,679	7,763
Texarkana, Ark.....	5,655	4,914	Winchester, Ky.....	7,156	5,964
Texarkana, Tex.....	9,790	5,256	Winchester, Va.....	5,864	5,161
Three Rivers, Mich.....	5,072	3,550	Windber, Pa.....	8,013	.....
Thomasville, Ga.....	6,727	5,322	Winfield, Kan.....	6,700	5,554
Throop, Pa.....	5,133	2,204	Winona, Minn.....	18,583	19,714
Tiffin, O.....	11,894	10,989	Winston Salem, N. C.....	17,167	10,008
Titusville, Pa.....	8,533	8,244	Winthrop, Mass.....	10,132	6,058
Tonawanda, N. Y.....	8,290	7,421	Winton, Pa.....	5,280	3,425
Torrington, Conn.....	16,840	12,453	Woburn, Mass.....	16,308	14,254
Traverse City, Mich.....	12,115	9,407	Wooster, O.....	6,136	6,063
Trenton, Mo.....	5,656	5,396	Wyandotte, Mich.....	8,287	5,183
Trinidad, Col.....	10,204	5,345	Yazoo, Miss.....	6,796	4,944
Troy, O.....	6,122	5,881	York, Neb.....	6,235	5,133
Tuscaloosa, Ala.....	8,407	5,094	Ypsilanti, Mich.....	6,230	7,378
Twin Falls, Ida.....	5,258	.....	Xenia, O.....	8,706	8,664
Tyler, Tex.....	10,400	8,069			

**UNITED STATES MILITARY ACADEMY.** A government institution at West Point, N. Y., founded in 1802 for the instruction of military officers. By law 533 cadets are authorized to attend the academy. In 1910 there were 416 cadets at the Military Academy, as compared with 411 on the corresponding date for the previous year. Included in this number were two from Cuba, one from Costa Rica, one from Ecuador and one from Venezuela. The corps of cadets is far below its present authorized strength of 533, but will be materially increased by an indeterminate addition under an act approved April 19, 1910, which provides that for a period of six years from July 1, 1910, whenever any cadet shall have finished three years of his course in the Military Academy a successor may be appointed. In September, 1910, there were 122 vacancies for the appointment of cadets. These vacant cadetships, together with 179 additional cadetships that will be open to appointment in 1911 and 1912, are to be filled by the appointment of cadets who are found qualified at the examination to be held in January, 1911. The superintendent and commandant in 1910, Col. Hugh L. Scott, was succeeded during the year by Major-General Thomas H. Barry.

**UNITED STATES NATIONAL MUSEUM.** An institution which originated by an act of Congress of 1846 founding the Smithsonian Institution. It is the official custodian of the national collections and its expenses are entirely provided for through appropriations made by Congress. The chief events in the history of the museum during 1910 were connected with the erection and occupation of its new building. By the end of the year practically all of the building except the interior of the south pavilion and the granite approaches had been structurally finished. The museum contains the national gallery of art. The collections gathered by Theodore Roosevelt in his expedition under the auspices of the Smithsonian Institution are lodged in the museum. (See SMITHSONIAN INSTITUTION.) There were important accessions in the departments of ethnology, entomology and technology during the year. The assistant secretary in charge of the museum is Richard Rathbun.

**UNITED STATES NAVAL ACADEMY.** A government institution at Annapolis, Md., founded in 1845, for the education of officers for the United States Navy. The attendance in 1909-10 was 360, and the instructors numbered 96, with 11 heads of departments. In 1909 the construction of the new buildings of the academy was completed at a cost of over \$10,000,000. Since 1905 the remains of John Paul Jones have been at the Naval Academy without an appropriate mausoleum, and attempts have been made for the passage of a bill through Congress for an appropriate resting-place, but these have failed. The Secretary of the Navy recommends the appropriation of \$135,000 for this purpose. He also recommends the passage of a law providing for pensions for midshipmen injured or incapacitated while serving two years probationary service after leaving the Naval Academy. The Superintendent in 1910 was Captain John W. Bowyer, and the Commandant was Captain C. A. Gove.

**UNIVERSALISTS.** A religious denomination first established in the United States at Gloucester, Mass., in 1799. Its distinctive tenet

is the final salvation of all men. According to the religious census made by the United States government in 1906 and published in 1910, the total membership of the denomination in 1906 was 64,158 with 768 churches and 724 ministers. The value of the church property is \$10,575,056. According to the official statistics of the denomination there were in 1910 about 54,000 communicants, 904 parishes and 689 ministers. The Sunday schools had a membership in that year of about 50,000 and the parish property was valued at about \$11,000,000. The parish expenses and contributions during the year amounted to \$1,250,954. The permanent funds of the General Convention amounted to \$392,466. The denomination carries on foreign missions in Japan and Cuba and domestic missions are sustained in fifteen States. Its educational institutions include Tufts College at Medford, Mass., St. Lawrence University at Canton, N. Y., Buchtel College at Akron, O., and Lombard College at Galesburg, Ill. It has also among its literary foundations Dean Academy at Franklin, Mass., Goddard Academy at Barre, Vt., and Westbrook Seminary near Portland, Me. Delegates of the denomination attended the International Council of Religious Liberals in Berlin in August, 1910. The next session of the General Convention will be held in Springfield, Mass., in October, 1911.

#### UNIVERSITIES AND COLLEGES.

**STATISTICS.** The report of the United States Commissioner of Education issued in March, 1910, for the year ending June 30, 1909, listed 606 universities, colleges and technical schools with a teaching force of 26,369 and an enrollment of 308,163 students in all departments. Of these institutions 89 controlled by States and cities had an enrollment of 62,972 collegiate and 2807 graduate students, comprising 49,218 men and 16,561 women, a total of 65,779. The 517 institutions controlled by private corporations had 66,051 men and 44,678 women collegiate students and 4946 men and 2433 women graduate students, a total of 117,565, excluding preparatory and professional students. The 144 institutions for men only had 33,651 undergraduates.

**WOMEN'S COLLEGES.** The 113 institutions for women only, included 16 chief institutions with 358 men and 584 women teachers, a total of 942; and 142 preparatory, 8264 collegiate and 194 graduate students, a total of 8610. These institutions conferred 1539 degrees, had 379,532 volumes in their libraries, \$1,107,878 in furnishings, \$3,635,807 in grounds, \$11,457,142 in buildings, \$13,494,953 in productive funds, and total receipts during the year of \$4,227,362. The other 97 institutions for women had only 1744 teachers, 19,344 students, conferred 942 degrees, had 281,181 volumes in their libraries, \$874,122 in furnishings, \$3,193,091 in grounds, \$9,324,298 in buildings, \$1,427,471 in productive funds, and total receipts during the year of \$3,090,445. That is, the collective resources of the 16 chief institutions for women exceeded those of the lesser 97 institutions. The 16 chief colleges were Mills, Cal.; Trinity, D. C.; Rockford, Ill.; Newcomb, La.; Goucher, Md.; Simmons, Radcliffe, Smith, Mount Holyoke and Wellesley, Mass.; Wells, Elmira, Barnard and Vassar, N. Y.; Bryn Mawr, Pa., and Randolph-Macon, Va. The 349 co-educational institutions had 79,728 men and 39,847 women undergraduates, a total of 119,575. The 493 institutions for

men and for both sexes had 20,961 men and 2722 women teachers, a total of 23,683. Of these 3990 were in preparatory, 13,648 in collegiate and graduate, and 6507 in professional departments. These 493 institutions enrolled 204,301 men and 75,908 women, a total of 280,209 including 64,001 preparatory, 153,226 collegiate, 9449 graduate, 37,149 professional, and 16,384 special students. Of the undergraduates 36,347 were in classical courses, 14,636 in general science, 65,110 in agriculture, 31,748 in engineering, 7224 in education, 5405 in commerce, 3316 in household economy, 6868 in music and 2212 in art.

**RESOURCES.** These institutions reported property amounting to \$603,102,969, libraries of 13,338,230 volumes, apparatus valued at \$33,756,034, grounds at \$67,161,996, buildings at \$219,997,873, productive funds at \$260,736,969. The aggregate receipts during the year were: \$76,650,969, \$19,178,953 from fees, \$10,948,702 from endowments, \$20,731,775 from city, State, and Federal government, and \$16,470,745 from private gifts. Twenty-one institutions had from one to two million dollars endowment, 9 from two to three million, 2 from three to four, 5 from four to five, and 7 had over ten million. The total number of degrees conferred in course upon men was 16,623, including 6450 of A. B., 4632 of B. S., 1370 of A. M., 677 of C. E., 515 of M. E., and 374 of Ph. D. The number of degrees conferred in course upon women were 7909, including 5361 of A. B., 787 of B. S., 423 of A. M., and 47 of Ph. D. Honorary degrees were granted to the number of 867.

**PROFESSIONAL SCHOOLS.** Fifty-two agricultural and mechanical colleges enrolled 72,865 students, an increase of 4026 over the year preceding. Of the total, 28,717 were in college departments, 11,203 in short and special courses, 6907 in preparatory departments, and 6766 were colored students in 16 separate institutions. Of the students of college grade 17,435 were in engineering and related subjects, 5873 in agriculture and 1443 in domestic science. The students in short and special courses represented an increase of 2455 or 28 per cent. over the preceding year. These institutions possess equipment valued at \$67,008,219, endowment of \$46,283,779 and income of \$18,595,893. The statistics of other professional schools included 162 schools of theology with 1350 instructors, 10,218 students—an increase of 635—1775 graduates in 1909, equipment valued at \$19,766,100, endowments of \$32,024,000, and an annual income of \$3,119,300. In medicine 144 schools reported 7957 instructors, 22,158 students—a decrease of 629—4484 graduates in 1909, equipment valued at \$12,583,981, endowments of \$3,468,734, and an annual income of \$1,843,518. In law 109 schools had 1343 instructors, 18,553 students—an increase of 484—3761 graduates in 1909, equipment of \$3,169,500, endowments of \$808,100, and an annual income of \$1,191,300. There were 412 women students of theology and 188 in law. There were 78 schools of pharmacy with 802 instructors and 5999 students—an increase of 432—equipment valued at \$914,500, endowments of \$252,278, and an annual income of \$236,920. There were 55 schools of dentistry with 1609 instructors, 6178 students—a decrease of 341—equipment of \$1,333,031 and an annual income of \$440,293. There were 19 veterinary schools with 373 instructors, 2677 students—an increase of 438—equipment valued at \$907,000 and an an-

nual income of \$187,774. The United States Department of Agriculture's regulations for examinations for veterinary inspector (September 1, 1909) are producing a practical standardization of schools. There were also 7809 students in training courses for teachers in 102 universities and colleges. Of colored men in collegiate courses there were 2885, of women 1300.

**INTERNATIONAL REGULATIONS.** Eighty-three Rhodes scholars from the United States were in residence at Oxford during 1909-10 as compared with 90 during 1908-9. Eighty-three have completed their courses with a good proportion of honor degrees, scholarships and honor examinations, the showing of students from the South and West being especially noticeable. All but one of these graduates have returned to the United States, and many of them have expressed their appreciation of Oxford's academic thoroughness, the recognition of the difference between passable and honorable scholarship, the social life, and the practice of athletics for the sake of the athlete and not the spectator. An International Exchange Bureau in England through popular subscriptions sent ten English university students for a three months tour in 1910 among institutions in Canada and the United States. A smaller group from Oxford made a similar tour independently. The University of Oxford announced the establishment of a lectureship at Oxford on American institutions by American scholars selected with the advice of an advisory committee representing American universities.

**CARNEGIE FOUNDATION.** The Fourth Annual Report of the Carnegie Foundation appearing in February, 1910, announced the granting of 115 new pensions at an annual cost of \$177,000, thus increasing its total payments to 318 pensions amounting to \$466,000 annually. The recipients represent 139 different institutions. Seven institutions were added to the Foundation's list: Coe College, Iowa; Swarthmore College, Pa.; the State Universities of Michigan, Minnesota, Missouri and Wisconsin; and the University of Toronto. The Randolph-Macon Woman's College withdrew from the list for denominational reasons, and the Foundation withdrew the George Washington University, charging that it had impaired its endowment and had arbitrarily dismissed two professors. These changes made the number of accepted institutions 67. In June Wesleyan University was added, without losing its privilege of having a certain number of its trustees elected by denominational bodies. The same report summarized the working of the retiring allowances and announced amendments of their rules, counting service in the rank of instructor toward retirement, making retirement after twenty-five years service but before the age of sixty-five possible only in the case of disability, but retaining the provision for pensioning the widows of professors of sixty-five years of age or of twenty-five years' service. These changes were based on the inadequacy of the Foundation's endowment (now of \$16,000,000), the growth of institutions, the increase of salaries, and the experience that retirement on the basis of age was frequently distasteful to the professor and the result of administrative pressure. Although the Foundation had regularly announced its right to alter its rules at any time, these changes were the occasion of charges of financial mis-calculation and ethical misleading of those who

were announced to be entitled to service pensions. Other criticisms continued to be directed to the Foundation's encouragement of undenominational control of educational institutions and its increasing influence over educational policy.

The remainder of the report and two special bulletins issued in June and in December constituted, as hitherto, the most conspicuous educational publications of the year. Concerning tax-supported institutions, the report dwelt upon agricultural education and the unfortunate results of competition between State universities and schools of agriculture. The functions of trustees, administrators, financial reports and college advertising and the further adjustment of high school and college and of higher education with public education in general, were suggestively studied.

**BULLETIN ON MEDICAL EDUCATION.** The fourth Bulletin of the Foundation, appearing in June, discussed "Medical Education in the United States and Canada." Written by Dr. Abraham Flexner and introduced and approved by President Pritchett, it surveyed our medical history from a generation ago, when no medical school required more than eight months to graduate a student of no preliminary education with a degree that was a license to practice in any State, traced the rise and decline of proprietary schools, and indicated the introduction of new ideals with the founding of the Johns Hopkins Medical School in 1893, until at present our best hospitals and surgery are admired by Vienna itself. A study of the present condition of our 155 medical schools indicated, however, that the resources, requirements, staff and facilities of most of them are inadequate and that they are training poorly and graduating two or three times as many physicians as can be assimilated by the population. Specific and severe criticism of particular conditions,—such as State connivance at low standards, the conflict for clinical facilities in New York, the violation of entrance provisions in Chicago, the examination for license of non-graduates in Massachusetts—was followed by a comprehensive scheme for improvement. Holding that a medical school is properly a university department and most favorably located in a large city where clinical material is abundant and various, that local competition should be succeeded by amalgamation or coöperation, that local provision should be adequate in each group of States, and that the present annual output of four or five thousand graduates should be reduced to 2000 or one to every 1500 citizens, of report proceeded to select and locate the 31 necessary medical schools. For New England, Harvard and Yale could supply the demand, although Dartmouth and Vermont might continue to offer the work of the first two years. For the middle States, New York, Philadelphia and Baltimore should abolish their inferior schools and merge the better and those of Syracuse and Pittsburg should be developed. For the South the development of Tulane and Vanderbilt, and the Universities of Texas, Georgia, Alabama and Virginia would be adequate. For the north central States, city schools in Cincinnati, Columbus, Cleveland and Chicago and others at the Universities of Michigan, Wisconsin and Indiana. For the middle west, Minneapolis and St. Louis and the Universities of Nebraska, Kansas and Iowa. The farther west would be adequately supplied by the Universities of Utah and Colorado, the Pacific coast by

the University of California and, later, the University of Washington. Of the medical schools thus selected, 19 are in large cities, 8 in large towns near universities, 4 are parts of universities in small towns. Of the 124 schools that are considered unnecessary some would survive through merger and 66 are negligible, having less than 100 students each. The selected 31 could serve every region and produce twice as many doctors as the country now needs with twice as good training as the present average.

This report met with immediate and marked response, varying from at least one suit for damages to frank acknowledgment of inefficiency and the closing of other institutions. The medical schools of Ohio Wesleyan and Western Reserve universities in Cleveland merged, gifts of between five and six million dollars were reported for the medical department of Washington University, St. Louis; and Columbia University, which last year received \$1,600,000 for medical research, received \$1,000,000 additional for medical buildings and the control of a new hospital adjoining the Rockefeller Institute for Medical Research, the assets of which were increased to \$8,000,000 at the opening of its new hospital in October.

**BULLETIN ON ACADEMIC EFFICIENCY.** The Fifth Bulletin of the Foundation, appearing in December, presented a study of "Academic and Industrial Efficiency" by M. L. Cooke, a specialist in industrial organization. He examined the cost at Harvard, Columbia, Princeton, Massachusetts Institute of Technology, the Universities of Toronto and Wisconsin and Williams and Haverford Colleges of teaching and research in physics, which was selected as a typical subject including lecture, recitation and laboratory work. Some fifty pages of tables presented the value of equipment, the cost of maintenance, and the annual expenditure; the training, salaries, and time distribution of teachers; the use of rooms and the size of classes, an analysis of the cost of research and teaching per student-hour; and suggested forms for an analysis of teaching and expense. The value of the report as a study of quantity rather than quality is frankly limited, but its discussion of the value of uniformity, centralization, standardization and similar financial and administrative matters, of expert rather than military or committee management, of the adoption of some unit like the student-hour as a measure of cost and efficiency, and of a board in each institution for the organization and supervision of research are suggestive.

**GENERAL EDUCATION BOARD.** The General Education Board at its seventh annual meeting in February appropriated \$450,000 toward endowment for seven institutions: Brown University Women's College; Cornell College, Ia.; Georgetown College, Ky.; Salem College for Women, N. C.; St. Lawrence University, N. Y.; Wesleyan University, Conn., and Williams College, Mass. To secure the gift each institution must raise from four to ten times the amount independently. In May the Board similarly appropriated \$682,000 toward endowment for eight institutions: Allegheny College, Pa.; Central University, Ky.; Cornell College, Ia. (additional); De Pauw University, Ind.; Drake University, Ia.; Marietta College, O.; Middlebury College, Vt., and Transylvania University, Ky. Such appropriations for endowments during the last four years amount to \$5,000,000 granted to

70 institutions on the condition of their raising \$18,000,000 independently. At the same meeting the Board granted \$113,000 for agriculture and \$31,000 for secondary education in the southern States. In October the Board granted \$725,000 to six institutions: Amherst College, Mass.; Baylor University, Tex.; Meredith College, N. C.; Trinity College, N. C.; University of Chattanooga, Tenn., and Wesleyan Female College, Ga. The total of these several appropriations for endowment was \$1,857,000 to 21 institutions. In December Mr. Rockefeller set aside from the funds of the Board \$10,000,000 to be paid in ten annual instalments to the University of Chicago with the request that \$1,500,000 be used for a chapel, the remainder for other purposes than endowment. This increase of the donor's gifts during 21 years to \$35,000,000 out of the university's total of \$42,000,000 was stated to be his final contribution and was accompanied by the withdrawal of his personal representatives from the Board of Trustees.

**ASSOCIATION OF AMERICAN UNIVERSITIES.** The Association of American Universities, representing 22 leading institutions, held its eleventh annual meeting in January at the University of Wisconsin. Professor Marx of Leland Stanford presented "The Problem of the Assistant Professor." Of one hundred and twelve assistant professors in twenty leading institutions, mostly in or near large cities, one-fourth were over 40 years of age, indicating the tendency toward a permanent class. Nearly one-half had incurred an average indebtedness of \$885 in pursuing their studies; one-fifth of these had not yet paid. The average length of service was 10.3 years, the average annual salary during that period \$1325, the present average salary \$1790. Three of the number were married, averaging 1.4 children to each family. Four-fifths supplemented their salaries with outside income, averaging one-fourth. Participation in university and departmental work and freedom in teaching seemed general, but so also was excess of elementary work and insecurity of tenure. Ten presidents from the institutions studied reported that while the number of assistant professors had been fairly constant during twenty years, the number of higher officers had decreased and the number of lower officers increased and that the standard for attainment of and promotion from the rank had advanced. Better salaries, academic opportunity and democracy were approved with the hope that increased worth and efficiency would make a class of permanent assistant professors unnecessary, and in general the frankness and agreement of all of the parties to the investigation seemed to the author "full of opportunity and promise." At the same meeting Professor Reber of the University of Wisconsin presented reports from 54 institutions showing that "University Extension" was increasing in the direction of greater consideration for teachers and for students who were not candidates for degrees, and of the development of summer sessions, afternoon, evening and Saturday classes, and of correspondence study. Greater financial support, closer affiliation with the university, and more coöperation with other educational agencies were suggested as desirable. President Wilson of Princeton discussed "The Arts Course," composed of pure science, philosophy, literature, history and politics, as a means to the discipline and enlightenment that should be fundamental to professional study. At the con-

clusion of the meeting definite meanings for the terms *group*, *curriculum*, and *division* were adopted and recommended.

The Association met again in November at the University of Virginia and discussed reports by President Bryan of Indiana University recommending that one year of a professional course be counted toward the degree of Bachelor of Arts, by Professor Thomas of Columbia on "The Degree of Master of Arts," and President Van Hise of the University of Wisconsin on "The Appointment and Tenure of University Professors." The meeting closed with a conference of deans concerning entrance requirements for graduate schools.

**EDUCATION SECTION A. A. A. S.** The Education section of the American Association for the Advancement of Science meeting in Boston during the Christmas recess of 1909-10 heard a vice-presidential address by Professor John Dewey of Columbia on "Science as Method and as Information," criticising the teaching of science as information and holding that it should be presented as method. Professor Thorndike of Teachers College presented arguments for and illustrations of the importance of "Educational Measurements," Professor Judd of Chicago held that "The Experimental Method in Education" should test processes rather than products, and Mr. Sage of the General Education Board discussed the "Geological Location and Sphere of Influence of Colleges in the United States" showing that less than twenty institutions could be considered national, the remainder being strikingly local. Professor Strayer of Teachers College presented special data collected by the Bureau of Education showing that only about 40 per cent. of freshmen continue to graduation, that the medium age for graduation was about 22 years and 8 months, and that the fathers of 19 per cent. of college students were professional, of 22 per cent. were farmers, of 35 per cent. were in trade or commerce, of 9 per cent. were laborers. One-fourth of the student body engage in gainful employment while in college. Joint sessions with the Physics Section and the American Federation of Teachers of the Mathematical and Natural Sciences discussed teaching in those fields. Finally the section adopted specific resolutions condemning very large and very small classes, recommending that course credits have some relation to the class enrollment, and that work for the bachelor's degree be periodically reported in detail to the Bureau of Education.

**DOCTOR'S DEGREES.** The degrees of doctor of philosophy conferred in 1910 were collated, as for twelve past years, by *Science* (August 19). They were 353 in number, as compared with 366, 378, and 387 in 1907, 1908, and 1909 respectively. The largest numbers were conferred by eleven institutions: Columbia (44), Chicago (42), Harvard and Cornell (each 35), Yale (27), Pennsylvania (26), Johns Hopkins (23), Wisconsin (18), Clark (14), Illinois (12), and New York (11). Nineteen other institutions conferred from 1 to 8 each. Half of the total numbers were in the sciences: chemistry, botany, geology, physiology, and astronomy being in the lead. In other fields the largest number of degrees were given in English, history, economics, and philosophy.

**THE DEGREE OF M. A.** Columbia University, which registered 1167 non-professional graduate students and granted 269 degrees of M. A. in

1910, instituted an inquiry through the Association of American Universities concerning current regulations governing the degree of M. A. No consensus of opinion was found except that the degree represents one year of graduate study, after the bachelor's degree or its equivalent, devoted to one subject or a small group of subjects. The degree appears to be sought as an approach to the doctor's degree, as a certificate for teaching, and as a sign of general culture. Nearly everywhere graduates and undergraduates are instructed together to some extent, about half the institutions allow the counting on some professional courses, about half make no specific statement of requirements, the other half require from eight to sixteen class hours per week. After a study of these facts and much consultation with its own departments, Columbia adopted in December a requirement for the degree of one year of resident graduate work representing about forty hours a week of attendance, preparation, reading, or laboratory work, divided into eight courses, each representing one-fourth of the candidates' time for half a year, the courses to be selected and arranged from one or more departments under the guidance of the department of major interest and approved by a faculty committee. The requirement of theses, hitherto obligatory, is left to the department of major interest. Where a thesis is required, as from all who look forward to research, it will be credited in place of one of the eight required courses.

**PROFESSIONAL STUDIES.** In professional fields the progress in medicine has been noted above. In law Harvard announced a four years' course, after the A. B., leading to the degree of juris doctor (J. D.); and Columbia opened a new half-million dollar law building with a research library. In the field of theology, Union Theological Seminary moved to its new three-million dollar equipment adjoining Columbia University. In agriculture the fourth session of the Graduate School of Agriculture at the Iowa State College in June and July enrolled 207 students from 39 States and 6 foreign countries. Present schools increased in attendance and resources. Columbia added agriculture and landscape architecture and gardening to its programme of studies, and Syracuse added agriculture and forestry. New State schools were begun and various railroads coöperated by making possible special trains carrying lecturers and demonstrators of agriculture and dairying. Cornell issued statistics showing that all but 46 of its 899 agricultural graduates were engaged in agriculture or agricultural education. Of the 206 graduates of the Illinois College of Agriculture 95 per cent. were reported as so engaged. Schools of engineering while continuing to emphasize physical science, began to require political and social sciences, history, and economics as well, while increasing, on the other hand, their connection with professional developments, such as illuminating engineering. In the field of music the Institute of Musical Art moved into its new half-million dollar building near Columbia University.

**ADMINISTRATION.** There were a number of important administrative changes in 1910. At the University of Michigan, Dean H. B. Hutchins of the law school was elected to succeed James B. Angell, who concluded his thirty-eight years presidency in 1909. President Cyrus Northrop resigned his twenty-six years' presidency of the

University of Minnesota, and George E. Vincent, dean of the faculties of art, literature and science in the University of Chicago, was elected to succeed him. C. C. Harrison, provost of the University of Pennsylvania during its great expansion since 1894, resigned and Edward F. Smith, vice-provost for twelve years, was elected his successor. The governorship of New Jersey claimed President Wilson from Princeton; age, Chancellor MacCracken from New York University; and ill-health, President Hazard from Wellesley. Their successors have not yet been elected. G. E. Fellows, president of the University of Maine since 1902, resigned and was succeeded by Robert J. Aley, editor of the *Educator-Journal*. William E. Huntington, for twenty-one years dean and for seven years president of Boston University, resigned. Professor Edmund C. Sanford was inaugurated president of Clark College, succeeding the late Carroll D. Wright. Dean W. P. Few, of Trinity College, N. C., was elected president, succeeding John C. Kilgo on the election of the latter to a bishopric. Dr. Chesman A. Herrick was elected to succeed A. H. Fetterolf, president of Girard College since 1882. Professor W. T. Foster of Bowdoin was elected president of Reed College, Portland, Ore, which is to open in 1911 with an endowment of \$3,000,000.

Published discussion of administrative problems seemed in general to point to a fuller appreciation of the coöperative responsibility between presidents and professors. The trustees of the University of Chicago on the occasion of Mr. Rockefeller's final gift in December recorded that as the donor of unparalleled gifts to a single institution he had refused to allow the university to bear his name, had reluctantly consented to be called its founder, had never suggested the appointment or removal of any professor or expressed assent or dissent to any of their views no matter how different from his own, that he had, in short, held a relationship to the university that formed an ideal for all educational benefaction.

The administrative affairs of Princeton were given much publicity from February to October through press statements of differences of opinion, concerning the location of proposed graduate schools, between the president of the university, the dean of the graduate school, and various trustees, professors and alumni. In February W. C. Proctor of Cincinnati withdrew his gift of October, 1909, of \$500,000 for the graduate school, for which a \$300,000 bequest was already available. In May, I. C. Wyman of Salem, Mass., bequeathed between two and three million dollars to the graduate school. In June, Mr. Proctor renewed his gift, which was reacquired in October.

A contest for the control of Vanderbilt University between the chancellor and a majority of the board of trustees, supported by Mr. W. K. Vanderbilt, and a minority of the board and the General Conference of the Methodist Church South, resulted in the board's refusing to receive trustees elected by the conference, the resignation of two bishops from the board, and the trial by the conference of a third bishop who supported the board. The whole matter is to be referred to the courts.

In April Dr. Charles W. Needham resigned the presidency of George Washington University after the Carnegie Foundation had removed that institution from its accepted list and a

Congressional Committee had found that its endowment had been dissipated. In June its professors offered to accept half salaries for the prospective year and its trustees placed a second mortgage upon the real estate of the institution, both attributing its misfortunes to expansion beyond its resources.

**GENERAL QUESTIONS.** Baccalaureate addresses dwelt with considerable uniformity on the service of universities and colleges in imparting some definiteness and precision concerning life and conduct in a time of destructive criticism and luxury.

There was much general discussion of university and college matters but no expression of opinion so significant as the statement of Professor Lamprecht of Leipzig that the universities of the United States now outrank those of Germany. University equipment continued to expand and at Yale \$50,000 a year was set aside for increasing salaries of assistant professors toward a maximum of \$3000, and those of full professors toward a maximum of \$5000. Dartmouth received a special endowment of \$400,000 for increasing salaries. The University of Pittsburg adopted an academic year of 45 weeks divided into four terms, and a system of industrial fellowships. The College Entrance Examination Board recommended for use in 1911 and thereafter the more flexible requirements in Latin formulated by the American Philological Association, and topics for English composition taken from the student's general knowledge and experience as well as from reading. The new Harvard plan by which a student must take at least four courses in one department and choose at least six from three other general fields became operative in 1910. Amherst, in June, restricted its electives by limiting the number of subjects taken at a time and requiring a number to be pursued beyond the elementary stage. Meanwhile, Professor Foster of Bowdoin published in *Science* (November 18) statistics showing that the new Harvard rules if applied to the progress of the class of 1894 would have allowed the programmes chosen by men who have since shown only average ability, but would have greatly restricted the programmes selected by the men who have since become distinguished. The English honor and pass system which has been tried at Harvard for several years was in 1910 extended to Columbia and recommended at Yale.

**PHYSICAL EDUCATION.** In the field of physical education a committee reported to the American School Hygiene Association at Indianapolis in March information from 124 universities and colleges showing that 102 had departments of physical education; 88 gave and 58 prescribed work in hygiene; 91 gave medical examinations; sanitary inspection of buildings, water supply, grounds, dormitories, and kitchens was given by 69, 64, 62, 57, and 47 institutions, respectively; 21 accepted hygiene and 8 physical training for admission; 21 required physical examinations and 6 hygiene for admissions. These statistics showed rapid progress since 1884 when only 28 institutions taught hygiene, and 1890 when only 6 prescribed it. The investigation showed further the tendency to correlate all of the interests relating to physical welfare. Meanwhile, although Wisconsin found that fifty students who were detected in dishonest work were below the standard in nearly every physical measurement, Yale failed to find any appreciable physi-

cal improvement in seniors over freshmen, and this although 88 per cent. of the men reported participation in athletics in addition to gymnasium work. In May, Princeton established a department of physical education. The new football rules proved a sincere effort at reform, but there continued to be many injuries and the Intercollegiate Rules Committee continued, late in December, to consider further modifications. The continued success of Rugby football on the Pacific coast and the commendation of it by returned Rhodes scholars attracted favorable attention. Chicago, following Wisconsin, took its baseball team to Japan.

**STUDENT AFFAIRS.** There were, as usual, many student dramatic performances. In May Bryn Mawr repeated its quadrennial Elizabethan pageant, with five hundred performers. In June Miss Maude Adams and her company presented "As You Like It" in the Greek Theatre at the University of California.

Concerning fraternities Illinois reported that 284 fraternity men spent on the average \$587 annually as compared with an average expenditure of \$407 on the part of 284 non-fraternity men; 69 non-fraternity men spent less than any fraternity man, namely from \$150 to \$350; 31 fraternity men spent more than any non-fraternity man, namely from \$850 to \$1550. Cornell announced that, while eleven fraternities lost no members through unsatisfactory work, eight fraternities lost from 10 to 17 per cent., that of 135 undergraduates dropped for poor standing 59 were fraternity men, and that of 421 members of six clubs 110 had been dropped or suspended. At Kansas members of fraternities and sororities averaged in scholarship 20 per cent. below non-members. At Wellesley an undergraduate alumnae and faculty congress on secret societies decided in March that they should be open, without election, to any junior or senior of high academic standing, of unusual excellence in any department, or of public service to the college. In October students were assigned to societies by a committee. The faculty of Mt. Holyoke determined in November to terminate all secret societies in 1913. On the other hand President Faunce of Brown spoke before the National Educational Association in June against suppressing, ignoring or directing the fraternities and in favor of a faculty attitude of sympathy, consultation and coöperation for worthy ends. Similarly, President Butler of Columbia inaugurated a plan for giving academic credit to such student activities as publication, debating, and literary societies. There were conspicuous instances of disorder and lack of discipline during the year at Yale, Wesleyan, and two or three minor institutions. Cornell created the position of proctor for the supervision of that one per cent. of the study body to whom disorder had been traced. The Association of Cosmopolitan Clubs in American Universities at its third annual convention at Cornell during the Christmas recess of 1909-10 affiliated its 23 branches with 2000 members with the European international federation of students, "Corda Fratres." The annual organ of the association became a monthly during the year. The Religious Education Association meeting at Nashville in March discussed "The Denominational Colleges," "The Relation of the Churches to Colleges and Universities," "The Moral Life of College Students," and "Fraternities and Moral Training."

**THE EDUCATION OF WOMEN.** Women students

gained twenty out of twenty-seven elections to Phi Beta Kappa at Illinois and nineteen out of thirty-one at Cornell. At Bryn Mawr President Taft delivered an address on the higher education of women in June and at its twenty-fifth anniversary in October there were numerous addresses by distinguished educators on the same topic. Vassar decided to continue the limitation of its numbers to 1000. Smith's registration of 1700 indicated a slight decline incident to the increase of tuition from \$100 to \$150. The Woman's College of Baltimore changed its name to Goucher College, in honor of its founder. Tufts abandoned co-education, founding an affiliated institution for women to be known as Jackson College. The Women's Educational and Industrial Union of Boston issued information concerning one hundred "Vocations for Trained Women other than Teaching."

**ALUMNI INTERESTS.** Alumni of our universities and colleges comprised 56 per cent. of the persons included in the sixth edition of *Who's Who in America*. Of the clergy there listed 81 per cent. were college graduates, of the lawyers 52 per cent., of the physicians 49 per cent. The biennial catalogue of Yale appearing in December listed 15,958 living graduates, 3483 in law, 1633 in education, 1453 in manufacturing, 1391 in finance, 1384 in engineering, 1247 in medicine, 1189 in mercantile careers, and 1177 in theology. These occupations show a drift away from the professions toward business. Of the Dartmouth Class of '99 at their tenth anniversary, sixty-seven men reported an average earning of \$2097. Five had less than \$1000, fourteen between that and \$1500, eighteen from \$1500 to \$2000, six from \$2500 to \$3000, one or two were in each of the next five hundred dollar groups up to \$7000. Of the Harvard law Class of 1905, 150 reported at their fifth anniversary average net earnings of \$2616. The alumni of Brown voted 2008 to 223 in favor of abolishing its charter requirement that the president and a majority of the trustees should be Baptists. Professor Bédier of the Collège de France, lecturing at Harvard and Columbia, expressed great admiration for the loyalty and generosity of American alumni associations.

**UNIVERSITY OF BERLIN CENTENARY.** Of unusual interest to Americans was the celebration of the hundredth anniversary of the University of Berlin on October 12, 1910. Several representatives from the United States were present, and a congratulatory address was made by President Hadley of Yale.

**OBITUARY.** Great loss was sustained by philosophy and psychology in the death, in August, of Professor William James (q. v.) of Harvard. Goldwin Smith (q. v.), sometime Regius Professor of Modern History at Oxford and colleague of Ezra Cornell in founding the university that bears his name, died in February. Harvard lost an eminent naturalist and generous donor in Professor Alexander Agassiz (q. v.), also the distinguished dean of its Law School, James Barr Ames (q. v.), and its rhetorician Professor A. S. Hill (q. v.) Sociology suffered the loss of Professor Sumner (q. v.) and music of Professor Sanford (q. v.), both of Yale; philosophy, Professor Borden P. Bowne (q. v.) of Boston University, and biology, Professor Whiteman (q. v.) of Chicago.

**BIBLIOGRAPHY.** Among the important educational books of the year were: *The Universities*

*of Ancient Greece* by John W. H. Walden, *Great American Universities* by Edwin E. Slosson, *The Life of Daniel Coit Gilman* by Fabian Franklin, *The Life of Mary Lyon* by Beth R. Gilchrist, *Life and Letters of Josiah Dwight Whitney* by Edwin Tenney Brewster, *Idols of Education* by Charles M. Gayley, *With the Professor* by Grant Showerman, *The Education of Women* by Marion Talbot, and *The Women of a State University* by Helen R. Olin. See also EDUCATION IN THE UNITED STATES.

**UPPER-SENEGAL AND NIGER.** A French inland colony in French West Africa (q. v.). Area, 819,000 sq. kilometres. Estimated population (1908), 4,521,685. Capital, Ramako, with 6524 inhabitants. In 1908 rubber was exported to the value of 436,716 francs; gum arabic, 12,000. Total imports (1908), 2,306,765 francs; exports, 483,625. Koulikoro is connected by rail with Kayes, and by boat up the Niger with Timbuktu. Length of telegraph lines, 7176 kilometres. The telegraph line from Timbuktu to Algeria is soon to be opened. Post and telegraph offices, 46. Revenue in 1908 (direct taxes, 5,472,399 francs) 6,786,953 francs; expenditure, 6,475,433. All Upper-Senegal and Niger is under civil administration. The lieutenant-governor (1910, M. F. Clozel) administers the colony under the direction of the governor-general of French West Africa.

**URANIUM.** See ATOMIC WEIGHTS.

**URUGUAY.** A South American republic, south of Brazil and east of Argentina. Capital, Montevideo.

**AREA AND POPULATION.** Uruguay is the smallest republic of South America, having an estimated area of 72,210 square miles. The census of October 12, 1908, showed 1,042,668 inhabitants; 1910 estimate, 1,112,000. The following figures are for 1908 and 1909 respectively: Marriages, 6368 and 6591; births, 35,520 and 35,663; deaths, 14,421 and 15,249; arrivals, 153,785 and 165,638; departures, 133,016 and 145,534. The estimated population of the department of Montevideo (256 square miles) was 316,264 in January, 1909, and 324,451 a year later. Besides the capital, the principal towns are Paysandú (about 19,000 inhabitants); Salto (18,000); Mercedes (15,000); Florida (12,500); San José (12,100).

**EDUCATION.** Primary instruction is free and nominally compulsory. In 1909, there were 790 public primary schools, with 76,042 pupils, and 263 private, with 19,028. Plans were made for the opening of 210 new schools in 1910. There are a number of religious seminaries, a few secondary and normal schools, and, at Montevideo, a university. The state religion is Roman Catholicism.

**PRODUCTION.** Less than 2.5 per cent. of the total area is under cultivation, the greater part of the land being given over to grazing. The leading crop is wheat, but the area sown to it was less in 1909 than in 1900. The following figures show the area and production of the grain crops in 1909: Wheat, 276,787 hectares and 233,910 metric tons; corn, 203,268 and 169,464; linseed, 18,341 and 13,260; oats, 6891 and 6711; barley, 3487 and 3072. Other products include tobacco, olives, and grapes. The country's principal source of wealth is stock-raising; according to the livestock census of 1908, there were 8,192,542 cattle, 24,730,289 sheep, 556,297 horses, 17,581 mules, 4358 asses, 180,197 swine, and 19,951 goats. There is also

a considerable number of ostriches. Mining is but little developed.

**COMMERCE.** The value of the special commerce has been as follows in gold pesos:

	1907	1908	1909
Imports .....	37,470,715	36,188,723	37,156,764
Exports .....	34,912,072	40,296,367	45,789,703

The principal imports are textiles, foodstuffs, various manufactured articles, and alcoholic beverages. Of the exports in 1908, livestock products amounted to 34,772,000 pesos and agricultural products 2,113,000 pesos. Recent figures for values in detail are not available. The largest single export is wool, for which the following quantities are reported: 1906-7, 92,593,000 lbs.; 1907-8, 105,820,000; 1908-9, 114,639,000; 1909-10, 132,700,000. Other large exports are hides and skins, meat, grease and tallow, and live animals. Figures for 1907, the latest available, show the distribution of the special trade as follows, in thousands of pesos:

	Imps.	Exps.		Imps.	Exps.
Gt. Britain ..	11,572	2,993	Arg'na ..	2,563	6,245
Germany ....	6,080	4,648	Brazil ....	1,744	3,004
France .....	3,924	6,432	Spain ..	1,725	805
U. States .....	3,440	1,563	Cuba....	150	1,093
Italy .....	2,898	1,155	Other....	686	1,422
Belgium .....	2,689	5,552			
Total ..37,471 34,912					

In 1909 there entered at the ports 4869 vessels, of 7,514,385 tons (steam, 3515, of 7,320,376), and cleared 4848 vessels, of 7,457,710 tons (steam, 3410, of 7,273,991 tons). Of the total tonnage, 7,184,287 entered and 7,085,335 cleared at Montevideo.

**COMMUNICATIONS.** Length of railways at the end of 1909, 2488 kilometres (1546 miles), of which 1255 kilometres (780 miles) were under state guaranty; under construction, 308 kilometres (191 miles). Extensions of the existing mileage are projected. Telegraph (1909): 319 offices, with 7804 kilometres (4849 miles) of line; post-offices, 1025.

**FINANCE.** The monetary standard is gold, the unit of value being the peso (coined only in silver), worth \$1.034. For the year 1907-8, revenue and expenditure amounted to 20,301,737 and 20,257,462 pesos respectively. The estimated expenditure for 1908-9 and 1909-10 showed the same total, namely, 21,075,331 pesos; for 1910-11, 23,333,261 pesos. Estimated revenue for 1908-9, 21,079,883 pesos; for 1909-10, 23,366,830 pesos. About two-thirds of the revenue is derived from customs; other sources are property, factory and tobacco taxes, and trade licenses. Larger items of expenditure in the 1910-11 budget: National obligations (including debt service and railway guaranties), 10,639,724 pesos; army and navy, 3,580,740; interior, 3,412,251; industries, labor, and public instruction, 2,308,794; finance, 1,523,843. The public debt December 31, 1908, stood at 130,157,090 pesos; December 31, 1909, 135,805,784 pesos, consisting of 125,231,882 pesos external, 2,560,000 international, and 8,013,902 internal.

**NAVY.** The navy in 1910 included: one armored cruiser (2200 tons), one torpedo cruiser (1500 tons), 4 gunboats, 4 dispatch boats, and one school ship.

**ARMY.** In 1910 the army comprised: general staff, 30 officers; office of military administration, 20 officers, 100 employees and mechanics; 2

regiments of field artillery, 86 officers, 600 men; 1 battery of Maxim-Vickers guns, 6 officers, 100 men; 1 battery of fortress artillery, 6 officers, 100 men; 1 company of machine guns, 6 officers, 100 men; 3 sections of artillery, each of 2 officers and 20 men; escort troops, 6 officers, 100 men; 10 regiments of cavalry, 196 officers, 2550 men; 8 squadrons of cavalry, 48 officers, 600 men; 8 battalions of infantry, 180 officers, 2400 men; 9 companies of infantry, 54 officers, 720 men, 1 company of engineers, 8 officers, 100 men; 1 military academy with 16 professors and 50 cadets; 3 military courts, 26 officers; 1 national arsenal, 15 officers, 150 employees and ouvriers, 15 generals and 82 cannons and machine guns.

**GOVERNMENT.** The executive authority is vested in a president, elected by the General Assembly for four years and assisted by a responsible ministry. The legislative power rests with the General Assembly, which consists of the Senate (19 members) and the House of Representatives (75). President in 1910, Claudio Williman, inaugurated March 1, 1907.

**HISTORY.** A plot was discovered against the government on the northern frontier early in October and it was reported later that 10,000 revolutionaries were gradually gathering. The government ordered a strict censorship of the press and few details could be obtained. The revolution was attributed in the press to the government's support of José Batlle y Ordóñez as a candidate for the presidency, who was regarded by many as reactionary and was generally unpopular. An insurgent force of 3000 was reported on October 29 to be advancing toward the capital from the Brazilian frontier, and later to have captured the town of Nico Pérez. There were conflicting reports at the close of the year as to the suppression of the movement.

**UYEHARA, G. E.** See **LITERATURE, ENGLISH AND AMERICAN, Travel and Description.**

**UTAH.** One of the Mountain Division of the United States. Its area is 84,990 square miles. The capital is Salt Lake City.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 373,351 as compared with 276,749 in 1900 and 210,773 in 1890. The increase in the decade from 1900 to 1910 was 34.9 per cent. The State ranks forty-first in point of population, whereas in 1900 it ranked forty-second. The population of the larger towns and cities will be found in the tables in the article **UNITED STATES CENSUS.**

**MINERAL PRODUCTION.** The mineral products of the State are of great value. It ranks high as a producer of copper. The copper product in 1909 was 101,241,114 pounds, a marked increase over the production of 1908, which was 71,370,370 pounds. The coal production of the State has steadily increased in recent years. There were produced in 1909 2,266,899 short tons valued at \$3,757,060 as compared with a production of 1,846,792 short tons valued at \$3,119,338 in 1908. This was the first time in the history of the State that a total of 2,000,000 tons had been reached. The increase was made almost entirely in Carbon county, which alone produced more coal in 1909 than the entire State produced in any year prior to 1909. This increase was due to the revival of the metal mining industry and to the general prosperity which came from good harvests in the agricultural sections. There were 16 fatal and 89 non-fatal accidents in the coal mines of the State

during the year. This State produced in 1909 gold valued at \$4,243,907 as compared with a value for the product of 1909 of \$4,213,300. There were produced 11,242,301 fine ounces of silver as compared with 10,551,100 fine ounces in 1909. There were produced in 1909 64,534 tons of lead as compared with 42,455 tons in 1908. The production of spelter amounted to 5960 tons in 1909 as compared with a production of 282 tons in 1908. The lead production of 1910 was, according to local estimates, 112,209,256 pounds valued at \$4,985,831. The copper production was 125,000,000 pounds valued at \$15,937,500 and the zinc product was 15,337,367 pounds valued at \$351,243. The total value of the metals mined in the State in 1910 was \$33,028,909.

**AGRICULTURE.** The acreage, production and value of leading crops are given for 1909 and 1910 in the following table:

	Acreage	Production	Value
Corn, 1910.....	13,000	394,000	331,000
1909.....	13,000	408,000	355,000
Winter wheat, 1910.....	155,000	3,178,000	2,670,000
1909.....	135,000	3,240,000	2,916,000
Spring wheat, 1910.....	100,000	2,530,000	2,125,000
1909.....	100,000	2,850,000	2,565,000
Oats, 1910.....	58,000	2,494,000	1,197,000
1909.....	55,000	2,536,000	1,319,000
Barley, 1910.....	13,000	488,000	281,000
1909.....	13,000	520,000	343,000
Rye, 1910.....	3,000	56,000	38,000
1909.....	3,000	66,000	46,000
Potatoes, 1910.....	15,000	2,130,000	1,257,000
1909.....	15,000	2,700,000	1,161,000
Hay, 1910.....	380,000	1,140,000	10,260,000
1909.....	375,000	1,088,000	9,792,000

a Tons.

**EDUCATION.** The school population on June 30, 1910, was 108,924. There were enrolled in the schools of the State 86,904 pupils and the average daily attendance was 67,984. The average monthly salary of male teachers was \$90.05 and of female teachers \$57.55. The expenditures for educational purposes amounted to \$2,832,273 and the valuation of school property to \$5,902,801.

**POLITICS AND GOVERNMENT.** There was no session of the legislature in 1910 as the sessions are biennial and the last was held in 1909. The elections held in November included Representatives to Congress but did not include an election for governor, as Governor Spry's term does not expire until January, 1913.

A Representative to Congress was elected in November, Joseph Howell, Republican, defeating Ferdinand Erickson, Democrat, the vote being 50,604, to 32,730. The American party candidate, Allen T. Sanford, polled 14,042 votes, the Socialist, James A. Smith, 4857. An associate Justice of the State Supreme Court, D. N. Straup, was elected by the Republicans, by substantially the same vote as for Howell. The distinctive issue nominally was the liquor question, the Republicans being for prohibition in the rural districts and license with regulation in the cities. The Democrats were for prohibition State wide. The American party declared against church rule in politics and civil affairs. The church influence, for the Republicans, decided the election. A legislature was elected in which there are 16 Republicans in the Senate to 2 Democrats. In the lower House 38 Republicans to 7 Democrats. It will elect a United States Senator to succeed George Sutherland, Republican.

**STATE OFFICERS** Governor, William Spry;

Secretary of State, C. S. Tingey; Treasurer, David Mattson; Auditor, Jesse D. Jewkes; Attorney General, A. R. Barnes; Superintendent of Education, A. C. Nelson; Commissioner of Insurance, Willard Done—all Republicans.

**SUPREME COURT.** Chief Justice, Joseph E. Frick; Justices, W. M. McCarty and Daniel N. Straup; Clerk, H. W. Griffith—all Republicans.

**STATE LEGISLATURE, 1911.** Senate, Democrats 2, Republicans 16, total 18. House of Representatives, Democrats 7, Republicans 38, total 45.

**VACATION SCHOOLS.** See EDUCATION IN THE UNITED STATES.

**VACCINATION.** See SMALLPOX AND VACCINATION.

**VACCINE THERAPY.** See SERUM THERAPY.

**VAJIRAVUDH, MAHA.** King of Siam who succeeded to the throne on the death of his father, Paraminda Mahr Chulalongkorn (q. v.). He was born in 1881 and was educated in England. He visited the United States in 1902. During his visit he demonstrated his dislike for royal pomp and his thoroughly European training. See SIAM.

**VALPARAISO UNIVERSITY.** An institution of general and higher learning at Valparaiso, Ind., founded in 1873. The attendance in 1909-10 was over 5000 students. The faculty numbered 187. Among the notable changes during the year was the addition of instructors in the law, music, engineering, medical, and dental departments. The courses of study, especially the B. S. and A. B. courses, were strengthened. The construction of a new law building was begun. The total income of the university is between \$250,000 and \$300,000. The president is H. B. Brown.

**VANADIUM.** See ATOMIC WEIGHTS.

**VAN DER WAALS, DIEDERIK.** See NOBEL PRIZES.

**VAN CLEAVE, JAMES WALLACE.** An American manufacturer, died May 15, 1910. He was born in Marion county, Ky, in 1849, and was educated at the Springfield Academy. In 1862-3 he served in the Confederate army under General John H. Morgan. After the close of the war he began in 1867 the manufacture of stoves and ranges in Tennessee. He later went to St. Louis and carried on the same business. He took great interest in labor questions and was an enthusiastic advocate of the open shop. This brought him into public notice when, as president of the Buck's Stove and Range Company of St. Louis, he joined forces with D. E. Loewe of Danbury, Connecticut, and carried through the courts the fight to restrain President Samuel Gompers of the American Federation of Labor and ex-President John Mitchell and Secretary Frank Morrison from interfering with the Bucks company and the Danbury company's business by carrying on a boycott by publishing a so-called "unfair list." As a result of this contest, Gompers, Mitchell, and Morrison were found guilty of contempt of court in December, 1908, and were sentenced to imprisonment. In 1906 Mr. Van Cleave was elected president of the National Association of Manufacturers, and in this position he fought aggressively for the open shop.

**VANDERBILT CUP RACE.** See AUTOMOBILES.

**VAN DEVANTER, WILLIS.** An American jurist appointed in 1910 associate justice of

the United States Supreme Court. He was born in Marion, Indiana, in 1859. He graduated from Ashbury (now De Pauw) University in 1878, and afterwards studied law at the Cincinnati Law School. After practicing law at Marion until 1884, he removed to Cheyenne, Wyoming. In 1886 he was appointed commissioner to revise the Wyoming statutes. He was city attorney of Cheyenne in 1887 and 1888. In the latter year he was a member of the Territorial Legislature. In 1889 he was appointed chief justice of the Supreme Court of Wyoming. From 1892 to 1894 he was chairman of the Republican State Committee, and from 1896 to 1900 he was a member of the Republican National Committee. He acted as Assistant Attorney-General of the United States, assigned to the Department of the Interior, from 1897 to 1903. In the latter year he was appointed circuit judge of the eighth judicial circuit. He held this position until his appointment to the Supreme Court. From 1898 to 1903 he was professor of equity pleading and practice at Columbian, now George Washington, University.

**VAN DYKE, HENRY.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**VAN HISE, C. R.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**VAN WAGENEN, A.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**VASHEGYITE.** See MINERALOGY.

**VASSAR COLLEGE.** An institution of N. Y., founded in 1861. The number of students higher learning for women, at Poughkeepsie, N. Y., founded in 1861. The number of students enrolled in the several departments in 1910-11 was 1050 and the faculty numbered 105. There were no noteworthy changes in the membership of the faculty during the year. The benefactions received during the year were not noteworthy, amounting in all to about \$5000. The productive funds of the college amounted in the year 1909-10 to \$1,387,000. In the library there are about 70,000 volumes. The President is James M. Taylor, D. D. LL. D.

**VEDDER, ELIHU.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**VEILLER, L.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**VENEZUELA, UNITED STATES OF.** A South American republic, east of Colombia. Capital, Caracas.

**AREA AND POPULATION.** The area, as officially estimated, of the 20 states, two territories, and federal district is 393,976 square miles. Estimated population (1910), 2,685,606. The following figures are for 1908 and 1909 respectively: marriages, 6050 and 6003; births, 71,033 and 72,385; deaths, 57,088 and 53,241; arrivals, 4280 and 9284; departures, 3979 and 7063. Principal towns, with estimated population: Caracas, 73,000; Maracaibo, 50,000; Valencia, 40,000; Barquisimeto, 32,000; Puerto Cabello, 14,000; La Guaira, 12,000.

**EDUCATION.** Public schools are reported as follows for the last quarter of 1909: national, 1014 (with 32,141 pupils enrolled); federal, 146 (4817); municipal, 225 (7537); second-grade, 4 (131); total, 1389 (44,626); in addition, 154 private schools (4092 pupils). There are some provisions for higher and professional education. The state religion is Roman Catholicism.

**PRODUCTION AND COMMERCE.** The more important crops include coffee, cacao and sugar. Other products are cereals, tobacco, rice, cotton and rubber. Stock-raising is important, and there are probably over 6,000,000 cattle, 1,600,000 goats, 1,600,000 swine, 313,000 asses, 191,000 horses, and 89,000 mules. The country is rich in minerals but exploitation is slight. There are some workings of gold (Yuruari region), copper, silver, iron, salt, and asphalt.

Imports and exports for years ended June 30 have been valued in bolivars as follows:

	1907	1908	1909
Imports .....	53,858,197	48,894,050	49,180,485
Exports .....	81,282,837	72,804,150	38,145,316

The leading imports are cotton textiles, flour, rice, and hardware. Values of the leading exports in the fiscal year 1909 were: Coffee, 40,492,000 bolivars; cacao, 17,904,000; rubber and balata, 9,126,000; hides and skins, 6,401,000; gold, 1,592,000; cattle, 1,049,000; aigrettes, 1,011,000; asphalt, 744,000. About one-half of the coffee, two-thirds of the hides, and almost all of the aigrettes and asphalt go to the United States, and a little more than one-fourth of the coffee and one-half of the cacao to France.

Imports and exports by countries in the fiscal year 1909, in thousands of bolivars:

	Imps.	Exps.		Imps.	Exps.
Gt. Brit. ..	14,990	7,621	France...	1,493	24,768
U.S. ....	14,270	37,231	Neth'ds. .	501	3,409
Germany ..	11,878	4,467	Cuba ....	.....	773
Spain .....	2,102	3,665	Other....	2,322	854
Italy .....	1,624	357			
			Total ..	49,180	83,145

In 1909, there entered at the ports 939 vessels, of 1,081,783 tons.

**COMMUNICATIONS.** In 1910, the total length of railways reported as in operation was 792 kilometres (492 miles), comprised in eleven lines. These lines can afford adequate transportation to only a very small part of the country. Steamer service is maintained on the Orinoco, Apure, and Portuguesa between Ciudad Bolívar, the principal Orinoco port, and the interior, as well as points along the coast. In 1909, telegraph; 179 offices, with 7839 kilometres (4871 miles) of line; post-offices, 253.

**FINANCE.** For the fiscal year 1908-9, revenue and expenditure are reported at 50,410,432 and 47,668,809 bolivars respectively (the bolivar is equivalent to the franc, or 19.3 cents). For 1909-10, the budget balanced at 50,000,000 bolivars and for 1910-11 at 48,000,000. The larger items of estimated revenue for 1910-11 are: Customs duties and parcels post, 20,250,000 bolivars; extraordinary surcharge of 30 per cent., 6,075,000; surcharge of 25 per cent., 5,062,500; stamps and cigarette paper, 5,875,000; salt monopoly, 3,750,000; liquor excise, 3,050,000;—the larger expenditures: Debt and treasury, 18,589,403 bolivars; interior, 10,032,481; army and navy, 7,994,809; public instruction, 3,412,386; fomento, 3,361,235. On December 31, 1908, the debt stood at 217,201,179 bolivars; December 31, 1909, 207,995,052 bolivars, including: the diplomatic debt of 1905, 129,178,080; internal consolidated debt, 65,524,428; other debts, 13,292,544.

**ARMY.** The active army includes 20 battalions of infantry, each of 400 men, 8 batteries of artillery, each battery of 200 men, and a naval battalion.

**NAVY.** The navy includes three gunboats, a dispatch boat, a transport, a torpedo boat, and a tug.

**GOVERNMENT.** The constitution of August 5, 1909, vests the executive authority in a president, elected by the congress for four years and assisted by a cabinet. The legislative power devolves upon a congress of two houses, the Senate (40 members) and the Chamber of Deputies (one for each 35,000 inhabitants). The president in 1910 was Gen. Juan Vicente Gómez. When President Cipriano Castro left the country in December, 1908, General Gómez, as vice-president, became acting president; elected provisional president, he assumed office August 13, 1909; elected, in April, 1910, constitutional president for four years, he was installed on the 3d of June following.

**HISTORY.** Despite the treaty of June, 1909, with Colombia, covering cases of dissension between the two republics, a quarrel broke out anew in the autumn of 1910 and on September 23 the Venezuelan government recalled its diplomatic representative from Bogotá. But later it was denied that negotiations had been broken off with Colombia and the Venezuelan minister at Bogotá was kept at his post. The point at issue was said to be Colombia's objection to the cession of certain lands which the treaty of 1909 required of her. The case of the Orinoco Steamship Company, which had been the cause of long disagreement between the United States and Venezuelan governments under President Castro, was decided by the Court of Arbitration at The Hague. See **ARBITRATION, INTERNATIONAL.**

**VERMONT.** One of the New England Division of the United States. It has an area of 9564 square miles. Its capital is Montpelier.

**POPULATION.** The population in 1910, according to the Thirteenth Census, was 355,956 as compared with 343,641 in 1900 and 332,422 in 1890. The increase in the decade 1900 to 1910 was 3.6 per cent. This is the smallest proportion of increase shown in any of the New England States. The State ranks forty-second in point of population, whereas in 1900 it ranked thirty-ninth. The population of the larger cities and towns will be found in the tables in the articles **UNITED STATES CENSUS.**

**MINERAL PRODUCTION.** The chief mineral products of the State are stone in its several varieties. Of these marble and granite form the greater part of the production. In the quarrying of marble Vermont greatly surpasses any other State. The value of this product in 1908, the latest year for which statistics are available, was \$4,679,960. The value of the granite produced in the same year was \$2,451,933. The State ranks first in the production of stone, surpassing Pennsylvania which in 1907 held first place. Slate is produced in large quantities. The value of this product in 1908 was \$1,710,491. The clay products are of considerable value. Among other minerals produced are coal products, lime, metallic paint, sand and gravel, talc and soapstone.

The acreage, production and value of the principal crops in 1909-10 are shown in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	67,000	2,881,000	\$1,901,000
1909.....	65,000	2,405,000	1,956,000
Oats, 1910.....	85,000	3,528,000	1,764,000
1909.....	81,000	2,608,000	1,304,000
Barley, 1910.....	15,000	465,000	316,000
1909.....	15,000	450,000	346,000
Rye, 1910.....	2,000	35,000	30,000
1909.....	2,000	31,000	31,000
Buckwheat, 1910....	8,000	192,000	134,000
1909.....	8,000	176,000	134,000
Potatoes, 1910.....	29,000	3,770,000	1,696,000
1909.....	30,000	4,650,000	2,046,000
Hay, 1910.....	930,000	1,256,000 <sup>a</sup>	15,574,000
1909.....	879,000	1,099,000	16,155,000
Tobacco, 1910.....	200	320,000 <sup>b</sup>	46,400
1909.....	200	335,000	50,250

<sup>a</sup> Tons. <sup>b</sup> Pounds.

**EDUCATION.** The number of pupils enrolled in the schools of the State in 1910 was 66,615 and the average daily attendance was 52,104. There are 2403 public schools in the State. Several important laws have been recently passed by the State legislature. Among these was a measure establishing teachers' training courses in high schools and academies.

**FINANCE.** The report of the State treasurer for the year ending July 10, 1909, showed a balance in the treasury July 1, 1909 of \$468,458. The total receipts during the year were \$1,945,753. The total disbursements for the year amounted to \$1,822,882, leaving a balance on June 30, 1910 of \$501,329.

**CHARITIES AND CORRECTIONS.** The correctional institutions number three: The State Prison at Windsor, the House of Correction at Rutland, and the Vermont Industrial School at Vergennes. In the State Prison at close of 1910 there were 164 inmates; the House of Correction contained 80, and the Industrial School, 185, ranging in age from 7 to 19 years. There are no charitable State institutions. The prisoners at Windsor and Rutland are required to labor. The industrial school is correctional and industrial and an effort is made to reform the child by kindly measures. The percentage of females in these institutions is small. There are seven at Windsor, 18 at Rutland and 45 girls at Vergennes.

#### POLITICS AND GOVERNMENT

The State legislature began its session on October 5, 1910, and on October 18 Carroll S. Page was re-elected United States Senator.

**ELECTIONS.** Elections for State officers and for Representatives in Congress are held in Vermont in September instead of in November, as in nearly all other States. The results of the election were therefore awaited with considerable interest as a possible indication of the trend of the national elections. The State is normally strongly Republican and there was little hope on the part of the Democrats that they would elect their candidates. They were, however, sanguine that the Republican majority would be largely reduced and in this their hopes were fulfilled as the figures below indicate. The Republican nominee for governor was Dr. John A. Mead of Rutland, who was lieutenant-governor, while the Democrats nominated Charles D. Watson of St. Albans. The Prohibitionists and Socialists also had tickets in the field but polled only a few hundred votes. The election held on September 6 resulted in the success of the Republican candidate for governor

by a plurality of 17,838 votes. The total vote was, Mead, 35,263 and Watson, 17,425. At the last State election held in 1908 the Republican candidate received a plurality of 29,645 votes, while in the presidential election the same year President Taft's plurality was 28,056. These figures indicate a Republican loss in the State of over 10,000 votes.

One of the most noteworthy political events of the year was the refusal of the Vermont Legislature in connection with various proposed constitutional amendments to vote to remove from the State constitution the time-lock, which provides for amendments only once in every ten years.

**OTHER EVENTS.** On January 18 a case of more than local importance was brought in Brattleboro to test the constitutionality of the corporation tax law passed in 1909. The case was brought by Stella P. Flint of Windsor as general guardian of the property of Samuel M. Stone, a minor, against the Stone-Tracc Company and others. No decision had been rendered in this case at the end of the year.

On April 17 fire destroyed buildings at Hyde Park valued at about \$100,000. The structures burned included the county jail, court house, a church and several stores and residences.

**PRESENT STATE GOVERNMENT.** Governor, John A. Mead; Lieutenant-Governor, Leighton P. Slack; Secretary of State, Guy W. Bailey; Treasurer, Edward H. Deavitt; Auditor, Horace F. Graham; Attorney-General, J. G. Sargent; Superintendent of Education, Mason S. Stone; Commissioners of Insurance, E. H. Deavitt, and Guy W. Bailey; Commissioner of Agriculture, O. L. Martin—all Republicans.

**JUDICIARY.** Supreme Court: Chief Justice, John W. Rowell; Assistant Justices, Loveland Munson, John H. Watson, Seneca Haselton, George M. Powers; Clerk, M. E. Smilie—all Republicans, except Haselton.

**STATE LEGISLATURE, 1911.** Republicans, Senate, 30; House, 196; joint ballot, 226; Democrats, Senate, 0; House, 48; joint ballot, 48; Independent Democrats, Senate, 0; House, 2; joint ballot, 2; Republican majority, Senate, 30; House, 146; joint ballot, 176.

**VERNON, MAX.** See *LITERATURE, ENGLISH AND AMERICAN, Travel and Description.*

**VERY, EDWARD W.** An American naval officer and inventor, died March 1, 1910. He was born in 1847 and graduated from the United States Naval Academy in 1867. In the following year he became an ensign, and a lieutenant in 1871. He was later attached to the United States legation at Paris, and he accompanied Marshal MacMahon when the latter's army entered Paris following the siege of that city by the Prussians. He resigned from the navy in 1885 and became allied with a firm of manufacturers. He subsequently became vice-president of the American Ordnance Company. He was known throughout the world as the inventor of the Very night signal. He had also a high reputation as an expert on large ordnance and several of his inventions are in use in the United States navy and elsewhere.

**VETERINARY EDUCATION.** See *UNIVERSITIES AND COLLEGES.*

**VETERINARY SCIENCE.** The requirements for admission to the Civil Service examination for veterinary positions in the Department of Agriculture, which took effect September 1, 1909, have already resulted in consider-

able improvement in the courses and facilities at the veterinary colleges. Works of particular value as text-books for use in veterinary schools that were published during 1910 include Sisson's *Veterinary Anatomy* and Herzog's *Disease-Producing Microorganisms*.

**TUBERCULOSIS.** The year 1910 was made noteworthy by the death on May 27 of Dr. Robert Koch, who discovered the tubercle bacillus in 1882 and later brought forward tuberculin, which now makes possible the early detection of tuberculosis in cattle. His death removes one of the great founders of modern bacteriology. Probably the most important investigation of tuberculosis, the results of which were made public during the year, was reported by Doctors Park and Krumwiede from the research laboratory of the New York City Department of Health. In these investigations conducted to determine the relationship of the bovine and human tubercle bacilli but one case of bovine origin was found in 297 patients above the age of 16 years. Nine cases of bovine bacilli were found in 54 patients between the ages of 5 and 16 years and in 22 of 84 children under 5 years of age. These investigators have also compiled the results of the reliable cases of human tuberculosis that have been carefully studied and recorded in the literature, a total of 1040. They find that of the 686 cases in patients of 16 years and over 9 gave bacilli of the bovine type; in 132 cases in patients between the ages of 5 and 16 years, 33 were of the bovine type, while in 120 under 5 years of age, 59 were of the bovine bacillary type. The large proportion of the cases with the bovine type consist of the infection of the abdomen and of the glands of the neck. These data emphasize the fact that the bovine type plays a significant and important part in the tuberculosis of children and that prevention must include the sources of bovine bacilli.

In order to demonstrate the practicability of eradicating bovine tuberculosis from a given area, and in the interest of a wholesome milk supply, the eradication of tuberculosis from the District of Columbia was commenced in November, 1909. All the cattle in the District, numbering 1701, were tested with tuberculin and of these 311, or 18.87 per cent., gave reaction. Lesions of tuberculosis were found in 98.36 per cent. of these. All new cattle brought into the District have to be submitted to the tuberculin test, and the herds will be retested at intervals to detect any cases that may have developed since the first test.

During the past year the number of States and Territories requiring a satisfactory tuberculin test as a qualification for the entrance of cattle for dairy or breeding purposes from other States or Territories was increased from 26 to 35. The investigation concerning the prevalence and extent of bovine tuberculosis conducted during the previous fiscal year were extended by the Department of Agriculture in 1910. In coöperative tuberculin tests performed for the interstate movement of dairy and breeding cattle, in which 7159 cattle in 12 States were tested, 2.98 per cent. reacted or were suspected. In the tuberculin tests made by the Bureau of Animal Industry inspection, as a result of co-operation extended to State, or cities, in which 35,042 dairy cattle were tested, 7.11 per cent. reacted or were suspected.

While no method of vaccination has yet been

devised whereby cattle may be fortified against attacks of tubercular infection under all circumstances, still it has been shown by the investigations of the Department of Agriculture that their resistance may be materially increased by means of suitable inoculations.

**TEXAS FEVER AND CATTLE TICKS.** During the past four years the U. S. Department of Agriculture has been engaged in coöperation with State and local authorities in the extermination of the cattle tick which conveys the Texas fever infection. The work has already resulted in great benefits to the portions of the territory that have been freed from the ticks and has demonstrated that it is practicable in time to eradicate the ticks from the infested region. During the fiscal year 1910, 57,518 square miles of territory were released from quarantine as a result of the eradication of these ticks. The total area so released since the beginning of the work amounts to 129,611 square miles. The sum of 250,000 was appropriated for this work during the fiscal year 1910 and a similar amount for the fiscal year 1911. It was shown by Dr. Arnold Theiler of the Transvaal Department of Agriculture that the peripheral coccus-like body of the mild or autumnal form of Texas fever, which has been supposed to represent a stage in the development of the Texas fever parasite, is in reality a distinct organism. This organism has been termed *Anaplasma marginale* and the disease which it produces is known as anaplasmosis. This affection occurs in various parts of the world, the infection being conveyed by the same ticks that convey the true Texas fever parasite.

**LIP-AND-LEG ULCERATION OF SHEEP.** The form of necrobacillosis known as lip-and-leg ulceration of sheep, which appeared in Wyoming about two years ago and became so threatening as to necessitate a Federal quarantine in the early part of the fiscal year 1910, has become much less prevalent under the quarantine and methods of treatment carried out, aided by the drouth of the past season.

**GID IN SHEEP.** This disease of sheep, discovered a few years ago in Montana and due to the invasion of the brain and spinal cord by the larval form of a tapeworm that occurs in dogs has been investigated by the Federal Bureau of Animal Industry. Three papers on the subject were published during the year and others are in the course of preparation. As the disease appears to be prevalent only in a part of Montana, it is very desirable that the parasite be prevented from spreading to other sections and that it be exterminated if possible. On November 25 a quarantine was placed upon all importations of collie, shepherd or sheep dogs in order to prevent further introduction of this tapeworm from abroad.

**HOG CHOLERA.** Practical demonstrations of the value of protective treatment of hogs against hog cholera were carried out successfully in a large number of States. The preparation of the immunizing serum is being quite generally taken up by the States. It is now believed that the use of carbolized hog-cholera blood in connection with the serum will be of distinct advantage when simultaneous inoculations are carried out, as experiments have shown that the virus is not destroyed by a 2 per cent. solution even after contact for two weeks.

**FOOT-AND-MOUTH DISEASE.** In Germany an

institute was established on the small Baltic island of Riems near Greifswald for the purpose of carrying on bacteriological research with a view to stamping out foot-and-mouth disease. The necessary funds are supplied by the government and the work is being conducted under the direction of the University of Greifswald. During the year an outbreak of this disease occurred in Yorkshire, Eng. In Russia it was officially announced that there were 30,000 cases of foot-and-mouth disease among cattle in the province of Yaroslav during the 5 weeks prior to August 12. In Argentina it has been thought several times that this disease, which made its appearance 10 years ago, had been stamped out. This, however, is not the case as during the year it broke out in the province of Corrientes.

**BIGHEAD OF SHEEP.** Bighead is a disease of sheep that occurs in certain sections of the intermountain region of Western United States, at altitudes from 4500 to 8000 ft. above sea level, usually on the plains and valleys between the higher mountain ranges. Investigations made during the year lead to the conclusion that it is brought about by the poisonous properties in a certain plant or plants in combination with certain climatic conditions.

**SCABIES OF SHEEP AND CATTLE.** The eradication of scabies of sheep in the West has progressed so well that during the fiscal year areas aggregating 390,000 square miles were released from quarantine, and the disease was greatly reduced in the territory remaining under quarantine.

**OTHER DISEASES.** In experiments conducted at the Iowa Experiment Station, it was found that sugar beets and mangels favor the formation of kidney and bladder stones when fed to breeding rams and it seems very probable that these roots have the same effect when fed to ewes or to cattle. Other diseases of domestic animals that were the subject of particular investigation in 1910 include chronic bacterial dysentery or John's disease of cattle, swamp fever of horses, infectious abortion, and blackhead or avian coccidiosis. A new nonpathogenic trypanosome was found to be quite commonly present in American cattle, and a new pathogenic species was found in Panama in the blood of horses received from the United States.

**VETERINARY INSPECTION.** An act passed during the year, which became operative October 1, provides for an examination by a veterinary inspector immediately before shipment of all horses, asses, or mules shipped from any British port to any port outside the British Isles. In the Hawaiian Islands an order providing for the inspection of all classes of livestock prior to landing was promulgated by the officials and became effective January 1. This order requires the mallein testing of horses and mules and the tuberculin testing of all cattle above the age of 6 months. A special order relating to glanders requires a quarantine of 21 days, counting from the date of departure from California, of all horse stock arriving in the Territory from that State.

**VETO RESOLUTIONS.** See **GREAT BRITAIN, History.**

**VEZIN, HERMANN.** American actor, died June 11, 1910. He was born in Philadelphia in 1829 and graduated from the University of Pennsylvania. He went to Europe and became an actor. His success was rapid and in 1852

Charles Keane engaged him for the part of Pembroke in his famous revival of *King John*. He afterward made a circuit of the English provinces, returning to London in 1859. Here he played Macbeth, and thereafter appeared with much success as Hamlet, King John, Othello and in other parts. One of his famous later rôles was that of Dr. Primrose. He took Henry Irving's place in *Macbeth* when the latter broke down, and achieved much success. When he was 80 years of age he played as Rowley in Sir Herbert Tree's revival of *The School for Scandal*.

**VIADUCTS.** See BRIDGES.

**VIARDOT-GARCIA, PAULINE.** A French singer, died May 18, 1910. She was born in 1821, the daughter of Manuel Garcia, the famous tenor. She developed her vocal qualities in Mexico and was one of Liszt's most accomplished pupils. For many years she enjoyed a series of unbroken triumphs in the various European capitals. In 1841 she married Louis Viardot, director of the Paris Italian Opera, and in 1863 she retired from the stage. She settled in Paris in 1871 and became a teacher of singing. She was the last of the famous school, headed by her father and Mme. Malibran, who was her sister. She composed several operas, over sixty vocal melodies and many instrumental pieces.

**VICTOR, ORVILLE JAMES.** An American writer, died March, 1910. He was born in Sandusky, O., in 1827 and graduated at the Seminary and Theological Institute at Norwalk, O., in 1847. From that date until 1893 he was engaged in editing various periodicals in New York and elsewhere. He compiled and edited *The Bibliographical Library*, *The American Battle series*, *Library of Standard Romance*, and other works. He was the author of the *History of the Southern Rebellion* (4 vols.), *Incidents and Anecdotes of the War*, *History of American Conspiracies*, and biographies of John Paul Jones, Israel Putnam, Anthony Wayne, and others.

**VICTORIA.** A state of the Australian Commonwealth. Capital, Melbourne. Area, 87,884 square miles. Estimated population, December 31, 1909, 1,297,557. For details, see AUSTRALIA. The executive authority is vested in a governor, appointed by the British Crown and assisted by a responsible ministry. The legislative power devolves upon a parliament of two elective houses, the Legislative Council and the Legislative Assembly. Governor in 1910, Sir Thomas D. Gibson-Carmichael; Premier, John Murray.

**HISTORY.** The policy of closer settlement was beginning to have some effect at the opening of the year and the people were coming to realize its importance. At the beginning of June the government declared its intention during the coming session of amending the Closer Settlement bill. Other features of its programme as announced were an attempt to secure compulsory education and the reintroduction of the Land Tax bill. The Victorian Parliament was opened by the Governor, Sir Thomas-Gibson Carmichael, on July 6, with a speech in which he referred to the uninterrupted prosperity of the state and urged an equitable dealing with the question of the financial relations between the Commonwealth and the states. A very serious accident occurred on July 18 at Richmond Station, when the Brighton express from Melbourne ran into a train which was standing still. The

collision caused the death of nine persons and the injury of 188. The treasurer brought in a Land Tax bill in the latter part of November for a tax of 3 farthings on the pound on unimproved lands.

**VICTORIA NYANZA.** See EXPLORATION, paragraphs on *Detailed Surveys of Africa*.

**VIEBIG, CLARA.** See GERMAN LITERATURE.

**VILLARD, O. G.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**VINCENT, GEORGE EDGAR.** An American scholar and educator, chosen in December, 1910, president of the University of Minnesota to succeed Dr. Cyrus Northrop, resigned. He was born at Rockford, Ill., in 1864 and graduated from Yale University in 1885. He engaged for a short time in editorial work, and traveled in Europe and the Orient. In 1886 he was editor of the *Chautauqua Press* and from 1888 he was vice-principal of the Chautauqua System. In 1907 he was chosen president of the Chautauqua Institution. From 1892 to 1894 he was fellow in Sociology at Chicago University and after having served as an instructor, assistant professor, and associate professor was, in 1904, made full professor. In 1907 he was appointed dean of the faculties of arts, literature and science. He is a son of Bishop John H. Vincent, who founded the Chautauqua System. He is the author of *Social Mind and Education* (1896) and *An Introduction to the Study of Society* (with Professor A. W. Small, 1895).

**VIRGINIA.** One of the South Atlantic Division of the United States. It has an area of 42,267 square miles. Its capital is Richmond.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 2,061,612 as compared with 1,854,184 in 1900 and 1,655,980 in 1890. The increase in the decade from 1900 to 1910 was 11.2 per cent. The State ranks twentieth in point of population whereas in 1900 it ranked seventeenth. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** The chief mineral products of the State are coal and iron. The coal output increased materially in 1909 over 1908. In the former year there were produced 4,752,217 short tons valued at \$3,868,524 as compared with a production of 4,259,032 short tons valued at \$4,362,102 in 1908. The production in 1910 was estimated by the United States Geological Survey to be about the same as in 1909. There was, however, a considerable increase in the tide-water shipments due to the new Virginian railway and the new developments along its lines. The State is an important producer of coke. In 1908, 1,162,051 short tons were manufactured. Copper was produced in 1909 to the amount of 231,971 pounds as compared with 25,087 pounds produced in 1908. Small quantities of gold and silver are also mined. The State contains deposits of zinc and in 1909 58 tons of spelter were produced. Lead is also found in the State in small quantities. The clay products are of importance, and other mineral products are coal products, talc, soapstone, pyrite, mineral waters, gravel, and barytes.

**AGRICULTURE.** The acreage, production and value of leading crops for 1909 and 1910 are given in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	2,142,000	54,621,000	\$35,504,000
1909.....	2,040,000	47,328,000	35,023,000
Wln. wheat, '10	795,000	10,176,000	9,871,000
'09	790,000	8,848,000	10,175,000
Oats, 1910.....	194,000	4,268,000	2,091,000
1909.....	200,000	3,800,000	2,052,000
Barley, 1910....	3,000	88,000	59,000
1909.....	3,000	86,000	61,000
Rye, 1910.....	20,000	270,000	216,000
1909.....	15,000	184,000	155,000
Buckwheat, '10	21,000	378,000	291,000
'09	21,000	378,000	287,000
Potatoes, 1910..	67,000	6,566,000	3,808,000
'09.....	60,000	5,520,000	3,864,000
Hay, 1,910.....	475,000	565,000a	8,192,000
1909.....	460,000	606,000	8,060,000
Tobacco, 1910..	160,000	124,800,000b	11,232,000
1909.....	155,000	120,125,000	10,210,000
Cotton, 1910..	.....	13,000c	.....
1909.....	.....	10,095	.....

a Tons. b Pounds. c Bales.

**EDUCATION.** The school population of the State according to the school census of 1905 was 580,615. The total enrollment in the year 1908-9, the latest for which statistics are available, was 392,651. Of these 275,668 were white and 117,083 were colored. The average daily attendance was 257,724. The State has no compulsory education laws. There were in 1908-9 345 high schools of first, second and third grades, with a total enrollment of 13,418. The average salary of white teachers in the State in 1909 was \$43 and of colored teachers, \$28. There were 10,093 teachers in the schools of the State. The value of the school property was \$7,192,575. The total expenditure for school purposes in the same year was \$4,431,370.

**POLITICS AND GOVERNMENT.** The legislature was in session in 1910 and the most important measures passed will be found in the section *Legislation* below. On January 25 the legislature re-elected John W. Daniel to the United States Senate. Senator Daniel died on June 29, and on August 1 Governor Mann appointed as his successor Claude A. Swanson, a former governor. Unlike most of the States Virginia held no election for governor in 1910 as Governor Mann's term does not expire until February 1, 1914. The election for members of Congress resulted in the uniform success of the Democratic candidates with one exception. C. Bascomb Slemple, Republican, was elected from the 9th district defeating Henry C. Stuart, Democratic candidate, but the latter reduced a Republican majority of more than 4000 to about 250. The legislature authorized the appointment of a State Tax Commission, to consider tax reform, the best method of equalization, to uncover intangible properties and to recommend whether it shall be advisable to segregate properties for taxation—allowing the cities and counties to collect and disburse revenues for all real and personal properties for schools, criminal expenses and municipal and county governments, the State to receive all revenues from railroads, carriers of all sorts, and licenses, and to pay all State expenses, including interest on the public debt, and pensions and to devote a stipulated sum for public education. That report will be submitted when the General Assembly meets in 1912. Dr. Douglass S. Freeman, Richmond, is the secretary of the commission. Colonel Morton Marye, for twenty-seven years auditor of public accounts, died December 22. He was succeeded by Captain S. R. Donohoe, of Fairfax. One of the significant acts of the Gen-

eral Assembly was the defeat of the Federal income tax amendment. The measure passed the Senate, but it met a stinging defeat in the lower branch of the legislature.

**LEGISLATION.** Among the important measures passed at the legislative session of 1910 were the following: Measures were passed providing for agricultural education in the State. The creation of drainage districts for the improving of swamp lands in the State was authorized. Acts were passed regulating the driving of automobiles in the State, setting a limit of 20 miles an hour in rural districts, and eight miles an hour on curves, hills and crossroads. Requirements for the admission to the practice of law and medicine were revised, and a board for the examination and registration of dentists was created. It was made a misdemeanor for parents or guardians of children under fourteen years of age to refuse to support them. A constitutional amendment was submitted extending the legislative session from sixty to ninety days. The corporation act of the State was generally revised and changed. An act was passed making it a misdemeanor to swear over the telephone or to abuse a person or his female relatives in such a manner as to lead to a breach of the peace. The electric chair was substituted for the rope in the carrying out the death penalty. Several important measures were passed relative to the punishment of criminals. One of these permits minors under 17 years of age, depraved or vicious, or convicted as first offenders of crimes to be placed in homes or institutions instead of jails. The release of prisoners on probation under the care of a police probationary officer appointed by the judge under the supervision of the State charity commission is also permitted. A law was passed requiring all practicing physicians to report all cases of contagious or communicable disease to the State Board of Health in order that it may send the patient proper instructions for regaining his health and preventing contagion. The Board of Health was vested with general power of making and enforcing regulations for promoting the public health, with respect to disinfection, isolation, sewage, investigation of disease and nuisances, and makes a violation of such regulations a misdemeanor. The liquor law of the State was revised and measures were passed permitting licensed incorporated country clubs, organized as social clubs, to dispense ardent spirits to members and to bona fide guests. The office of State accountant was created. He is to devise and promulgate uniform systems for all State departments and institutions, and to inspect frequently the books and vouchers in order to report thereon to the legislature. A tax commission was appointed for the examination of the existing tax system. The basis of the State tax on telephone companies was changed from a rate by the instrument to a rate depending on the gross receipts. Changes were made also in the taxation of insurance companies, express companies, water, gas, light and power companies. The legislature submitted a constitutional amendment, permitting the legislature to change the form of municipal governments, subject to the approval of the municipality affected. A law was passed permitting cities of 10,000 to provide separate playgrounds for children of white and colored races. Important legislation was enacted relating to white slaves, as a result of the agitation carried on in 1909-10.

**STATE OFFICERS.** Governor, William H. Mann, Democrat; Lieutenant-Governor, J. T. Ellyson; Secretary of Commonwealth, B. O. James; First Auditor, Morton Marye; Treasurer, A. W. Harman, Jr.; Superintendent of Instruction, J. D. Eggleston; Attorney-General, Samuel W. Williams; Commissioner of Agriculture, George W. Koener; Commissioner of Insurance, Joseph Button—all Democrats.

**JUDICIARY.** Supreme Court of Appeals: President, James Keith; Justices, S. G. Whittle, John A. Buchanan, George M. Harrison, and Richard H. Cardwell; Clerk of the Court, H. Stewart Jones—all Democrats.

**STATE LEGISLATURE, 1911.** Democrats, Senate, 34; House, 87; joint ballot, 121; Independents and Republicans, Senate, 6; House, 13; joint ballot, 19; Democratic majority, Senate, 28; House, 74; joint ballot, 102.

**VIRGIN ISLANDS.** A group of islands constituting a presidency of the Leeward Islands (q. v.). Area, 50 square miles. Population (1901), 4908. Births, (1908), 185 (80 illegitimate); deaths, 75; marriages, 27. Primary schools, 7, with 866 pupils; government grant £159. Cultivated area, 1000 acres. Cotton export (1908), 32,520 pounds. Imports (1908), £8629 (internal trade, £314); exports, £7150 (internal trade, £155). Tonnage entered and cleared, 14,422. Post-offices, 5. Revenue and expenditure for the year 1908-9, £4248 and £4693 respectively. No debt. Commissioner (1910), R. S. Earl.

**VITAL STATISTICS.** The following statistics were compiled from the Public Health Reports of the United States Marine Hospital Service. These figures, while admittedly incomplete and often misleading, particularly in the case of foreign countries, are the best obtainable.

**SMALLPOX.** There was a total of 26,763 cases of smallpox in the United States, with 329 deaths. The States suffering most heavily were: Alabama, 658 cases, 1 death; Colorado, 993 cases, 9 deaths; Florida, 287 cases, 1 death; Illinois, 556 cases; Indiana, 998 cases, 2 deaths; Iowa, 733 cases; Kansas, 2089 cases, 10 deaths; Louisiana, 711 cases, 9 deaths; Michigan, 2572 cases, 52 deaths; Minnesota, 962 cases, 9 deaths; Montana, 686 cases, 1 death; North Carolina, 3875 cases, 8 deaths; North Dakota, 307 cases, 2 deaths; Ohio, 739 cases, 4 deaths; Oklahoma, 2203 cases, 99 deaths; Tennessee, 658 cases, 4 deaths; Texas, 3044 cases, 69 deaths; Utah, 819 cases, 2 deaths; Virginia, 350 cases, 6 deaths; Washington, 471 cases, 14 deaths; Wisconsin, 263 cases. Among foreign countries considerable numbers of cases were reported from the following: Argentina, 662 deaths; Brazil, 1128 cases, 1530 deaths; Canada, 218 cases, 2 deaths; Chile, 550 cases; China, 245 cases, 248 deaths; Egypt, 1048 cases, 264 deaths; India, 44 cases, 1512 deaths; Italy, 811 cases, 76 deaths; Mexico, 64 cases, 268 deaths; Philippine Islands, 197 cases; Portugal, 1651 cases, 222 deaths; Russia, 3986 cases, 1809 deaths; Spain, 37 cases, 258 deaths; Straits Settlements, 693 cases, 233 deaths; Tripoli, 243 cases, 24 deaths; Uruguay, 1129 cases, 519 deaths.

**YELLOW FEVER.** There were no cases of yellow fever reported in the United States during 1910 and only 2 cases in the Panama Canal Zone, and these were imported from the West Indies. The South American countries visited are as follows: Brazil, 469 cases, 435 deaths;

Ecuador, 293 cases, 112 deaths; Mexico, 12 cases, 9 deaths; Venezuela, 21 cases, 9 deaths.

**CHOLERA.** There were 2 cases and 1 death from this disease in New York City, imported on incoming steamships. There were many thousands of cases in Russia and the East and a few in Europe distributed as follows: Arabia, 57 cases, 49 deaths; Austria-Hungary, 44 cases, 19 deaths; China, 28 cases, 273 deaths (reported simply as "present" several months in the year); Germany, 36 cases, 16 deaths; India, 1344 cases, 1127 deaths; Indo-China, 80 cases, 54 deaths; Italy, 656 cases, 247 deaths; Japan, 800 cases, 393 deaths; Java, 2488 cases, 1552 deaths; Korea, 72 cases, 41 deaths; Madeira, 77 cases; Persia, 364 cases, 241 deaths; Philippine Islands, 9537 cases, 6890 deaths; Russia, 214,174 cases, 99,581 deaths; Servia, 11 cases, 3 deaths; Siam, 888 cases, 1031 deaths; Straits Settlements, 116 cases, 111 deaths; Tripoli, 253 cases, 198 deaths; Turkey, 572 cases, 299 deaths; Turkey in Asia, 2552 cases, 1764 deaths.

**PLAGUE.** Two cases and 1 death occurred in the United States—in California. In foreign countries the disease was distributed as follows: Arabia, 10 cases, 5 deaths; Argentina, 38 cases, 17 deaths; Brazil, 149 cases, 124 deaths; China, 114 cases, 3099 deaths; Chile, 303 cases, 96 deaths; Ecuador, 620 cases, 226 deaths; Egypt, 1097 cases, 448 deaths; Great Britain, 6 cases, 5 deaths; Hawaii, 11 cases, 8 deaths; India, 570,843 cases, 436,440 deaths; Indo-China, 121 cases, 53 deaths; Japan, 83 cases, 53 deaths; Manchuria, 335 cases, 321 deaths; Mauritius, 255 cases, 146 deaths; Russia, 633 cases, 453 deaths; Siam, 131 cases, 121 deaths; Turkey in Asia, 175 cases, 167 deaths; Venezuela, 17 cases, 13 deaths.

**DEATH RATE.** According to the "Bulletin of Mortality Statistics" for 1909, issued by the Census Bureau of the Department of Commerce and Labor, the total number of deaths in the registration area of the United States (comprising about one-half of the population) was 732,538. The death-rate per thousand was 15 (or, according to the revised figures, 14.4), the lowest ever recorded. Of this total 398,597, or 54.4 per cent., were males, and 333,941, or 45.6 per cent., females; while 732,538, or 26.8 per cent. of the deaths were among children under 5 years of age, and 140,057, or 19.1 per cent., were infants under one year of age.

During 1910 the total deaths from all causes reported to the Department of Health of the City of New York numbered 76,742, making a death-rate of 15.98 per thousand. This rate is a little lower than that of 1909 (16 per thousand), and is the lowest recorded for the city. Upon analysis it is found that all causes of death which are amenable to sanitary control show a decrease, being the following: Tuberculosis, with a decrease of 1840; diarrhoeal diseases, under five years of age, 1151; diphtheria and croup, 608; typhoid fever, 258; whooping cough, 167; measles, 165; malarial fevers, 93; smallpox, 89; scarlet fever, 32. Other prominent causes showing decrease were apoplexy, 1974; pneumonia, 2203; acute bronchitis, 850; Bright's disease and acute nephritis, 1317; accidental deaths, 733, and suicides, 153. The diseases showing increases were: Cancer, 230; organic heart disease, 93; cirrhosis of the liver, 25; appendicitis, 23; and homicides, 63. The deaths of children under five years of age numbered 6022 less than during the preceding year. During

1910 there were 129,080 births, the greatest number ever reported in New York city, corresponding to a birth-rate of 26.55 per thousand of the population. The marriages reported were 46,417, an increase of 4904 over 1909. See paragraph on population in articles on countries.

**VIVISECTION.** Anti-vivisection agitation was kept up largely through the efforts of one New York newspaper in that State, and two bills were presented to the legislature and an attempt made to establish a commission to investigate the practice of vivisection and animal experimentation. The commission was to consist of seven persons: two physicians or scientists, two active anti-vivisectionists, two lawyers, and one member at large. The American Medical Association, through its council on the defense of medical research, had already made a careful investigation of all American medical schools and laboratories in which animal experimentation was carried on. This investigation showed that every care is taken to avoid the infliction of pain on animals used for experimental purposes, and reliable safeguards against the careless use of animals are already in existence. Practically all of the laboratories engaged in research had voluntarily adopted regulations which governed the conditions under which animals were used for experimentation, and the responsibility had been placed on the directors of the laboratory. Any procedure involving a degree of suffering greater than that accompanying anesthetization can be used only with the director's permission. Such regulations have been in force in some institutions for many years. It is interesting to note that, according to British experience, the discovery of satisfactory conditions in the medical laboratories has no effect in allaying the antivivisection agitation, for although conditions in these institutions have been shown again and again to be humane, antivivisection societies have multiplied, and at present there are fifteen societies in Great Britain energetically striving for the absolute abolition of animal experimentation.

**VOCATIONAL EDUCATION.** See EDUCATION IN THE UNITED STATES.

**VOGÜÉ, EUGÈNE MARIE MELCHIOR**, Vicomte de. A French littérateur and academician, died in March, 1910. He was born at Nice in 1848. He served in the French army during the Franco-Prussian War. He was successively attached to the French embassy at Constantinople, the legation in Egypt and the embassy at St. Petersburg. At the latter Court he passed seven years and in 1882 gave up the diplomatic service to devote himself to literature. In 1888 he was made a member of the French Academy. It was largely through his efforts that Russian novelists first became known in France and afterwards throughout the English speaking world. He was a regular contributor to the *Revue des Deux Mondes*, and wrote for other periodicals. His more important publications include: *Syrie, Palestine, Mont Athos* (1876); *Histoires orientales* (1879); *Le roman russe* (1886); *Regards historiques et littéraires* (1892); *Heures d'histoire* (1893); *Cours russes* (1894); *Le rappel des ombres* (1900); *Pages d'histoire* (1902); and the novel *Les morts qui palent* (1899).

**VON AEHRENTHAL**, Count. See AUSTRIA-HUNGARY.

**VON BIENERTH**, Baron. See AUSTRIA-HUNGARY.

**VON LEYDEN, ERNST** A German pathologist, died, October 5, 1910. He was born in Danzig, in 1832 and was educated at the Friedrich Wilhelm Institute at Berlin. From 1854 to 1865 he served as a military surgeon and in the latter year became a professor in the medical school at Königsberg. In 1872 he went, in the same capacity, to the University of Strassburg and in 1876 he was appointed as successor to Ludwig Traube, the famous German clinician at Berlin. He was an eminent authority on cancer. He contributed many articles to the *Zeitschrift für klinische Medizin*, a medical magazine which he helped to found in 1879. His best known work is *Klinik der Rückenmarkskrankheiten*. He was a member of the Foreign Medical Society, the Institute of France and the Academy of Upsala.

**VORSE, ALBERT WHITE**. An American author and editor, died June 15, 1910. He was born at Littleton, Mass., in 1866 and graduated from Harvard College in 1889. He engaged in journalism and in 1891-3 served on the staff of the *Philadelphia Press*, accompanying the Peary Relief Expedition to Greenland in 1892 as a representative of that paper. In 1893-4 he was music critic of the *New York Mail and Express* and from 1894 to 1896 was literary editor of the *Boston Commonwealth*. He acted for a short time as dramatic editor of the *Illustrated American* and as literary adviser to G. P. Putnam's Sons. In 1900-1 he was associate editor of the *Criterion*, and was assistant managing editor of the *New International Encyclopedia* from 1901 to 1903. He was a member of the American Geographical Society and the National Geographic Society. He was the author of *The Laughter of the Sphinx* (1900) and of the chapters on "Japan under the Constitution" in the volume on Japan in the "Story of the Nations" series.

**VOSE, GEORGE LEONARD**. An American educator and engineer, died April, 1910. He was born in 1831 and was educated at the Lawrence Scientific School. From 1860 to 1864 he was associate editor of the *American Railway Times*, and from 1872 to 1882 was professor of civil engineering at Bowdoin College. From 1882 to 1886 he occupied the same position at the Massachusetts Institute of Technology.

**WADDELL, LOUISE (FORSSLUND)**. An American writer, died May 2, 1910. She was born in 1873. Her first published work was *The Story of Sarah*, and it was followed by *The Ship of Dreams* and other stories of Long Island. In 1907 she married Charles Carey Waddell. She was a graduate of Packer Collegiate Institute.

**WAGES, RAILWAY EMPLOYEES'**. See RAILWAYS.

**WAKE, CHARLES STANILAND**. An English anthropologist, died June 22, 1910. He was born in Kingston-upon-Hull, England, in 1835, and was educated at Hull College. He was for a time a director of the Anthropological Institute of Great Britain and Ireland and was a member of the general committee of the British Association for the Advancement of Science. In 1895 he became connected with the Field Museum of Natural History, Chicago, and this connection continued until the time of his death. Among his published writings are *Chapters on Man* (1862), *The Evolution of Morality* (1878), *The Origin and Significance of the Great Pyramid* (1882), *Serpent Worship and Other Essays* (1888), *The Development of Marriage and Kinship* (1889), *Vortex Philosophy, or the Geometry*

of *Science* (1907). He edited the *Memoirs of the Congress of Anthropology* (Chicago, 1893-4) and contributed articles on anthropology, sociology and philosophy to scientific and technical journals.

**WALES.** See GREAT BRITAIN.

**WALKER, H.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**WALKER, H. W.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**WALLACE, C. W.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**WALLACE, D.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**WALLACH, OTTO.** See NOBEL PRIZES.

**WALLER, M. E.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**WALSH, MICHAEL.** A Roman Catholic educator and editor, died, October 7, 1910. He was born in Kilkenny, Ireland, in 1835 and after having graduated from St. Kyrnes's College he entered Maynooth University in 1853. Here he remained eight years and was first honor man in all his classes. He was for several years thereafter a professor in Carlow College. In 1866 he came to New York and established St. Stephen's Latin School. He became a special writer for several New York papers and in 1873 was made editor of the *Sunday Democrat*, of which he later became proprietor. In 1889 he founded the *Catholic Herald* as the special organ of the Holy See in America. In 1902 he retired from the management of the *Sunday Democrat* and the editorship of the *Catholic Herald*. At that time Cardinal Gibbons and other prelates organized a subscription to which many of the best known clergymen and laymen contributed. The amount raised was \$20,000.

**WALSH, THOMAS F.** An American mine owner and financier, died April 8, 1910. He was born in Ireland in 1851, and at the age of eighteen emigrated to America where he worked for several years as a laborer. By his shrewdness in taking sub-contracts he soon accumulated a small sum of money. In 1873 he removed to the west and engaged in mining in the Black Hills. He was successful and in 1879 went to Leadville, Colo., at the height of the mining prosperity of that city. He there opened a hotel which at once became a great money-making investment. He also prospected for mines, and against the advice of miners located claims in the higher altitudes, among them the famous Camp Bird properties, which soon made him a man of enormous wealth. These mines were later sold to an English syndicate. In 1899 he was appointed commissioner for Colorado to the Paris Exposition, and his lavish expenditures in Paris made him an object of great attention. He made the acquaintance of King Leopold of Belgium, who had mining properties in the Belgian Congo, which he wished developed on American lines. Mr. Walsh became a partner with the King in the development of these properties. Mr. Walsh was noted for his democratic demeanor and was known widely throughout the country as Tom Walsh. His home in Washington was one of the show places of the capital.

**WALTER, ARTHUR FRASER.** An English newspaper proprietor, died, February 22, 1910. He was born near Wokingham in 1846. His great-grandfather, grandfather and father had been successively chief proprietors of *The Times*, which was founded by the first John Walter in 1785 as the *Daily Universal Register* and re-

named *The Times* at the beginning of 1798. He was educated at Eton, and at Christ Church, Oxford, graduating from the latter in 1870. On the death of his elder brother in 1870 he became the destined successor of his father in the management and chief proprietorship of *The Times*, a position which, under the will of the founder of the journal, had always been held by the head of the family of Walter. He accordingly entered at Lincoln's Inn and was called to the bar in 1875, although he never practiced. Shortly after taking his degree at Oxford he became associated with his father in the management of *The Times* and in 1880 he was formally appointed joint manager. From that time forward his whole life was given to *The Times*. On the death of his father in 1894 he became in turn manager and chief proprietor, and retained the latter position until 1908, when he exchanged it for that of chairman of The Times Publishing Company, which was formed as the result of suits instituted in the Law Courts for the purpose of adjusting the conflicting rights and interests of the several proprietors of the journal. At that date *The Times* was owned by a large number of proprietors without definite liability or sufficient responsibility. In consequence of the action of some of these proprietors the courts declared that the position of all parties should be regularized by the Limited Liability Acts. This was done by the formation of The Times Publishing Company, with a capital of £750,000, and of this company Mr. Walter was chosen chairman. He rarely came before the public, and following the unbroken tradition of his family, was content to efface his own personality in the anonymity of *The Times*. He had a large estate near Wokingham and took considerable interest in local affairs.

**WARBASSE, J. P.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**WARD, H.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**WARD, Mrs. HUMPHRY.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**WARD, JOHN QUINCY ADAMS.** An American sculptor, died May 1, 1910. He was born at Urbana, O., in 1830. He studied law, but his inclinations led him towards sculpture, and in 1850 he began to study under H. K. Browne. At the end of seven years, he began executing figures which received much commendation. Chief of these was the equestrian statue of Washington in Union Square, New York. In 1857-59 he lived in Washington, where he executed busts of Alexander Stephens, Joshua R. Giddings, John P. Hale, Hannibal Hamlin and others and in 1861 he opened a studio in New York. Perhaps the most noteworthy of his works is the statue of "The Indian Hunter" in Central Park, New York. Among his other works in the same park are: "The Pilgrim," "Shakespeare," and "A Seventh Regiment Soldier." Other of his works in New York City are the statue of Washington in front of the Sub-Treasury Building, the William E. Dodge statue at Broadway and Sixth Avenue, the statue of Henry Ward Beecher in Brooklyn, and the Greeley statue in Post Office Square. He also executed the "Crowning Group of Victory" for the naval arch erected in New York City for the reception of Admiral Dewey. For some years previous to his death he was at work on the equestrian statue of General Sheridan, but this, owing to a disagreement, was not completed.



JOHN QUINCY ADAMS WARD



Mr. Ward was one of the few eminent American sculptors who never studied abroad. He was one of the founders of the National Sculpture Society and was its president for several years. He was also prominent in the National Academy of Design, of which he was president in 1874.

**WARD, W. H.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**WARDEL, Mrs. J. V.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**WAREGA.** See ANTHROPOLOGY AND ETHNOLOGY.

**WARLICH, REINHOLD VON.** See MUSIC.

**WARNER, ADONIRAM JUDSON.** An American soldier and public official, died August 13, 1910. He was born at Wales, N. Y., in 1834 and was educated at Beloit, Wisconsin, and at New York Central College. He acted as principal of several schools in Pennsylvania from 1856 to 1861. In the latter year he enlisted in the Tenth Pennsylvania Reserves and in 1862 was made lieutenant-colonel. He served through some of the most important battles of the Civil War and was severely wounded at Antietam. In 1863 he was made colonel of the Veteran Reserve Corps, but resigned in 1865. In the same year he was brevetted brigadier-general. After the close of the war he built steam and electric railways, opened coal and iron mines and developed water power for generating electricity. He was a member of Congress from 1879 to 1881 and from 1883 to 1887. He was a strong advocate of bimetalism and was president of the Bimetallic Union from its organization. He wrote *Appreciation of Money* (1877) and *Source of Value in Money* (1882); also various pamphlets and monographs on different subjects.

**WARNER, BEVERLY ELLISON.** An American Protestant Episcopal clergyman and writer, died November 27, 1910. He was born in Jersey City, N. J., in 1855. He was educated at Princeton College and at Trinity College, graduating from the latter institution in 1876. He studied theology at the Berkeley Divinity School and was ordained priest in 1880. From 1879 to 1880 he was rector of a church in South Manchester, Conn. After filling other pastorates in Connecticut he was in 1893 chosen rector of Trinity Church in New Orleans, a position which he held until the time of his death. He was a delegate to several general conventions and was president of the standing committee of the diocese of Louisiana. He lectured and wrote much on literary and sociological topics and was the author of *Troubled Waters* (1885); *English History in Shakespeare's Plays* (1894); *The Facts and the Faith* (1897); *The Young Man in Modern Life* (1902); *The Young Woman in Modern Life* (1905); and *Famous Introductions to Shakespeare's Plays* (1906). He was the administrator of Tulane University in 1897.

**WARNER, H. P.** See DRAMA.

**WARWICK, C. F.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**WASHINGTON.** One of the Pacific Division of the United States. Its area is 69,127 square miles. Its capital is Olympia.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 1,141,990 as compared with 518,103 in 1900 and 357,232 in 1890. The increase in the decade 1900 to 1910 was 120.4 per cent. This is the highest rate of increase shown in any of the States. The State ranks thirtieth among the States in point of population, whereas in 1900 it ranked thirty-

fourth. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** The chief mineral product of the State is coal. There were produced in 1909, 3,576,356 short tons as compared with 3,024,943 short tons in 1908. The production in 1910 was estimated by the United States Geological Survey at 4,500,000 tons. Gold was produced to the value of \$711,359 as compared with a value of the product of 1908 of \$429,000. Of silver, 176,816 fine ounces were mined as compared with 76,200 fine ounces in 1908. There were produced 120,611 pounds of copper in 1909 as compared with 162,201 pounds in 1908. The stone products are valuable, amounting in 1908 to \$1,367,191. Of these, granite composed the greater part. Other mineral products are coal products, coke, lime, sand and gravel.

**AGRICULTURE.** The acreage, production and value of leading crops for 1909 and 1910 are given in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	16,000	448,000	336,000
1909.....	15,000	417,000	359,000
Winter wheat, 1910	676,000	13,858,000	10,809,000
1909	780,000	20,124,000	18,715,000
Spring wheat, 1910	810,000	11,745,000	9,161,000
1909	760,000	15,856,000	14,560,000
Oats, 1910.....	206,000	8,817,000	4,232,000
1909.....	202,000	9,898,000	4,751,000
Barley, 1910.....	186,000	5,394,000	3,075,000
1909.....	182,000	7,189,000	4,601,000
Rye, 1910.....	6,000	123,000	109,000
1909.....	4,000	84,000	79,000
Potatoes, 1910.....	39,000	5,109,000	3,730,000
1909.....	41,000	6,970,000	3,276,000
Hay, 1910.....	388,000	815,000a	12,796,000
1909.....	380,000	798,000	11,172,000

a Tons.

**EDUCATION.** The number of children of school age in the State in 1910 was 268,972. The enrollment in the schools was 215,688 and the average daily attendance was 156,064. There were 7170 teachers employed. Of these 5736 were females and 1434 were males. The total value of all the school property in the State was \$19,069,112. The total expenditures for the schools were \$11,017,983. The average monthly salary of male teachers was \$70.56 and of female teachers was \$62.95. During the biennial period 1908-10 there were many important developments in educational progress in the State. An educational campaign for better rural school conditions was carried on. Many modern school houses were constructed. Schools for defectives were established in districts of the first class. There was a rapid development of high schools and the attendance of summer schools doubled.

**FINANCE.** The report of the State treasurer for the biennial period 1908-10 showed a balance in the treasury on October 1, 1908 of \$316,426. The total receipts during the same period were \$6,743,042 and the total disbursements, \$6,119,741, leaving a balance of cash on hand September 30, 1910, of \$623,301. The principal disbursements were for education, for the maintenance of State government and for the support of State institutions.

#### POLITICS AND GOVERNMENT

There was no regular session of the State legislature in 1910 as the sessions are biennial and the last was held in 1909. The next session begins January 10, 1911.

**ELECTIONS.** Washington differed from the majority of the States in that no election for governor was held in 1910. The term of Governor Hay does not expire until January, 1913. The chief interest in the elections was in the vote for United States Senator to succeed Senator Piles. The insurgent Republicans are strong in the State and their candidate for senatorial nomination was Representative Miles Poindexter, who was one of the most aggressive insurgent representatives in Congress. His opponent was Judge Thomas Burke, of Seattle. Mr. Poindexter won in the primaries September 13, by a plurality of 40,000, carrying all but two counties in the State. The insurgent candidates carried all the congressional districts, except one.

The most important issue in the election of November 8 from a local as well as a national standpoint, was the constitutional amendment granting suffrage to women. This amendment was carried by over two to one, making Washington the fifth State in the Union to give the elective franchise to women. In the elections for Congress W. E. Humphrey, Republican "standpatter," was elected in the first district, defeating W. W. Black, Democrat; Stanton Warburton, Republican insurgent, was elected in the second district, defeating Maurice Langhorn, Democrat, and William L. Lafollette, Republican insurgent, defeated H. D. Monrit, Democrat, in the third district.

**OTHER EVENTS.** On March 2, a most destructive avalanche, when measured by the loss of human lives, swept down the Cascade mountains at Wellington on the Great Northern railroad and carried with it two trains into the canyon, 200 feet below, and buried 70 passengers alive; all were killed. On October 8, a petition was circulated in Seattle for the recall of Mayor Gill. The Seattle charter provides for this measure when 25 per cent. of the registered voters at the last election sign a recall petition. The petition declared the mayor had shown himself incompetent, unfit and as abusing his powers. On December 22 the petitioners were counted and found to be 11,443, or more than enough for the recall; the election was set for February 7, 1911. In December a commission form of government was adopted by Spokane; many women registered to vote for this measure and two-fifths of those registered cast their ballot.

Forest fires raged in different parts of the State in August and September, causing great damage and some loss of life.

**LEGISLATION.** Among the important measures enacted at a special session in 1910 were the following: The legislature passed a radical act requiring an affidavit of physical fitness for marriage, stating freedom from tuberculosis, and in the case of the male, from any contagious disease. It prohibits the marriage of drunkards, criminals, epileptics, feeble minded, imbeciles, idiots, insane, or those afflicted with hereditary insanity. The prohibition does not extend to females over 45 years of age or males who are to marry them. An act was passed providing for the formation of commercial waterways districts on petition to the Board of County Commissioners signed by owners of a majority of the land area in the proposed district. The commissioners submitted the matter to a vote. If adopted three waterways commissioners are elected annually, to direct, within the district, the improvement of rivers and water courses, the construction of locks,

canals and dikes, the acquisition of rights of way and similar matters. The expenses of the improvements are borne partly by the assessment of betterments and partly by the issue of bonds.

**STATE OFFICERS.** Governor, M. E. Hay, Republican; Lieutenant-Governor, vacant; Secretary of State, I. M. Howell, Republican; Treasurer, John G. Lewis, Republican; Auditor, C. W. Clausen, Republican; Adjutant-General, George B. Lamping, Republican; Superintendent of Public Instruction, Henry Dewey, Republican; Attorney-General, W. P. Bell, Republican; Commissioner of Public Lands, E. W. Ross, Republican; Commissioner of Insurance, J. H. Schively, Republican.

**SUPREME COURT.** Chief Justice, Frank J. Rudkin; Associate Justices, R. O. Dunbar, H. D. Crow, M. A. Fullerton, W. Mount, M. F. Gose, S. J. Chadwick, George E. Morris and Emmett N. Parker—all Republicans; except Chadwick; Clerk, C. S. Reinhart.

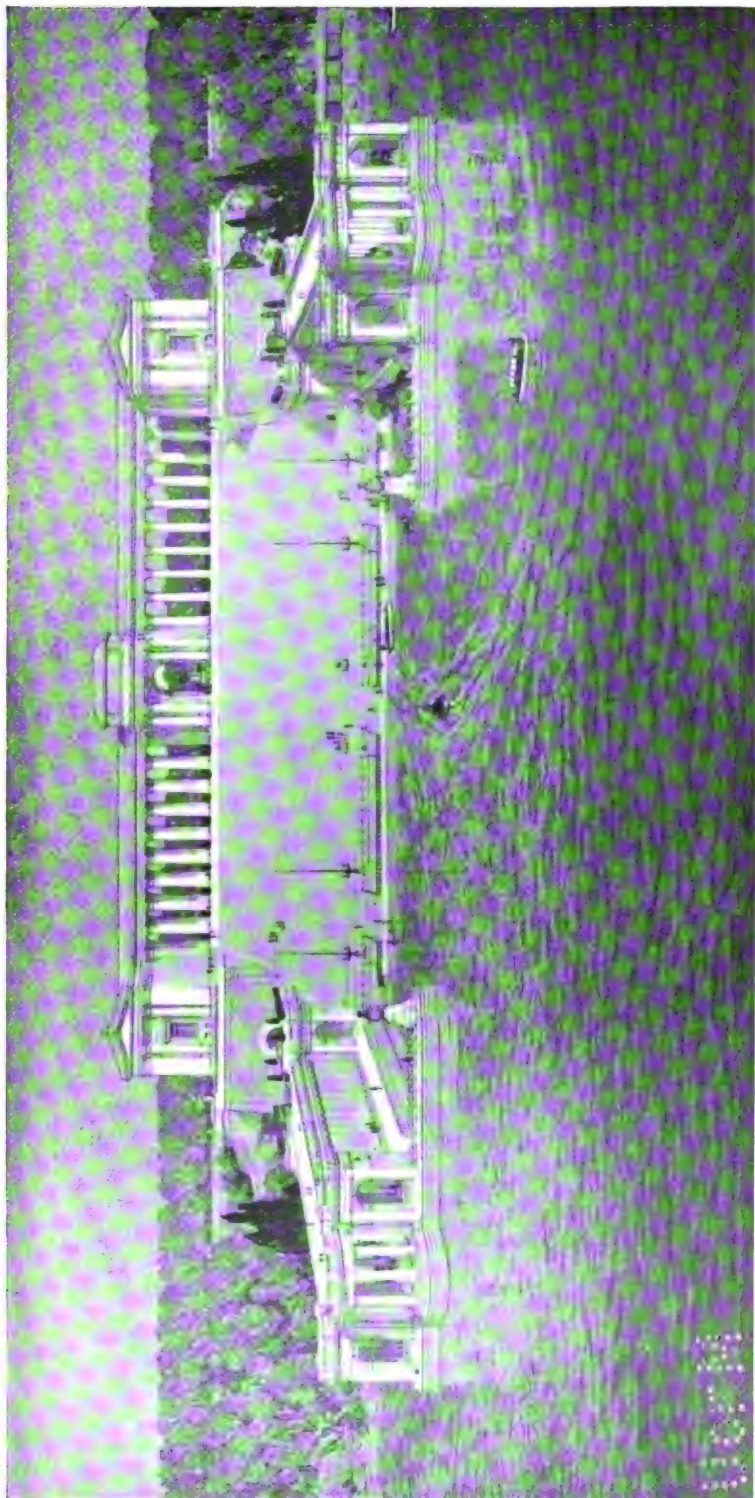
**STATE LEGISLATURE, 1911.** Republicans, Senate, 37; House, 84; joint ballot, 121. Democrats, Senate, 5; House, 12; joint ballot, 17. Republican majority, Senate, 32; House, 72; joint ballot, 104.

**WASHINGTON, BOOKER T.** See *LITERATURE, ENGLISH AND AMERICAN, Political and Social Science.*

**WASHINGTON, UNIVERSITY OF.** An institution of higher learning at Seattle, Washington, founded in 1862. The number of students enrolled in the several departments of the university in 1909-10 was 2156. The faculty numbered 113. A new department of Scandinavian Languages has been founded, of which Professor David Nyvall has been made the head. Professor Walter G. Beach has been appointed to the professorship of social science. During the year the Loretta Denny fellowships became available. These included a fund of about \$25,000, the income of which is awarded equally to three students in the graduate school upon the recommendation of the Committee on Advanced Degrees. The university is divided into the following colleges and schools: College of liberal arts, college of engineering, school of forestry, school of law, school of mines, school of pharmacy, graduate school, and the summer school. The department of journalism, which was established in 1907, has almost attained the importance of a separate school. This is true also of the department of education. The university conducts a summer school which is attended by many high school teachers and college graduates who are working for advanced credit, as well as by others. The university depends for maintenance upon money appropriated by the State legislature. The income for the year 1909-10 amounted to \$300,000. An income is also received from property situated in Seattle. This brings in about \$15,000 annually. The library contains about 42,000 volumes. The President is Thomas F. Kane, Ph. D.

**WATER-COLOR SOCIETY,** See *PAINTING.*

**WATER GATE, ROBERT FULTON MEMORIAL.** In 1905 the Robert Fulton Monument Association was organized for the purpose of erecting a suitable memorial in honor of the inventor. Cornelius Vanderbilt was made president and Richard Delafeld, vice-president. Various memorial schemes were suggested and discussed. The project of a monumental water gate on the Hudson proposed by Dr. Nicholas Murray Butler was finally accepted and designs were in-



H. Van Buren Magonigle, Architect

ROBERT FULTON MEMORIAL WATER GATE, NEW YORK CITY

34

vited. The State legislature passed a bill in 1907 giving the association the right to use the river bed at 114th to 116th Streets from the shore 700 feet into the stream. The city authorities also agreed to give land in Riverside Park at this point for the shore buildings and approaches.

In January, 1910, sixty-eight designs were offered in competition, the judges being William R. Mead, George B. Post, Thomas Hastings and John R. Pope. The successful design was by H. Van Buren Magonigle. It consists of a monumental building in Doric style on shore with a vast flight of steps and wings extending 600 feet into the river, thus affording a landing-place for vessels and, in the buildings, rooms for a naval museum and the public reception of distinguished guests. The estimated cost is \$3,000,000. The association expects to begin work in 1912.

**WATER, HARD, SOFTENING OF.** See CHEMISTRY.

**WATER PURIFICATION.** The most notable feature of water purification during the year was the installation of numerous hypochlorite plants for treating surface supplies liable to sewage pollution. Among these may be named plants for disinfecting the water supply of Milwaukee, Wis.; Minneapolis, Minn.; Toronto, and Montreal, Canada, and Nashville, Tenn. Many of the hypochlorite plants are for emergency use, pending the construction of filtration works; some of them (i. e. Harrisburg, Pa.; Quincy, Ill.; etc.) are supplementary to filters, particularly to mechanical filters making use of sulphate of alumina as a coagulant. The use of hypochlorite sometimes makes possible a reduction in the quantity of coagulant required more than sufficient to pay for the hypochlorite, while at the same time giving equal or better results than flow from the coagulant alone. It should be understood that the hypochlorite is used in minute quantities and as a germicide alone. As employed, it has no appreciable effect on suspended matter or color. The hypochlorite most generally used is hypochlorite of lime, or a high grade of bleaching powder. Hypochlorite of sodium, made electrolytically from salt, may be used where cheap electric current is available. The agent in either case may be applied to the water at the pumps or at any convenient point on a gravity supply main where a thorough mixing with the water will be ensured.

Notable advantages of hypochlorite treatment are: (1) the quickness and (2) the low cost of installation; also (3) the low cost of operation. Thus in two or three days an extempore plant and in as many weeks a serviceable permanent or semi-permanent plant may be put in operation, thus making the process of immense value in case of a sudden outbreak of typhoid fever which is believed to be due to the pollution of a public water supply.

Although the use of this disinfecting agent is by no means new, yet it did not come into wide use until 1910. Moreover, its utility or practicability for the continuous treatment of water was not recognized until its adoption by the contractor for a new water supply for Jersey City, N. J., in 1909. This came about through a lawsuit brought by Jersey City, alleging non-fulfilment of the purity clauses of the contract. The city urged that the company was bound to exclude the sewage of several small commun-

ities from discharge into the Rockaway River, above the storage reservoir at Boonton, N. J., or else to purify the sewage in question. The company maintained that the pollution was so small as to be negligible, but the court decided that although proven to be small yet the pollution afforded a possible danger which must be averted. The contractor therefore established a hypochlorite plant, then an innovation for such use. The city fought the acceptance of the plant as a fulfillment of the contract, but after considering the bacterial results afforded by the operation of the plant together with much expert testimony, a court ruling was made in 1910 to the effect that the hypochlorite plant satisfied the contract. The case may yet go to a higher court, however. For descriptions of numerous hypochlorite plants, see issues of *Engineering News* for 1910.

For the time, at least, hypochlorite is far in the lead of ozone as a destroyer of possible disease germs in water. None of the several makers of ozone apparatus has as yet succeeded in producing plants that combine simplicity, mechanical reliability and low construction and operation costs. As a rule, the germicidal efficiency of ozone plants has been high; but an investigation of the ozone plant at Lindsey, Ont., made by the Provincial Board of Health of Ontario and reported on twice in 1910, showed the ozone plant to be a failure, owing to the unreliable working of some of its parts. A lengthy illustrated review of ozone water-purification systems and results appeared in *Engineering News* for April 28, 1910. In the same journal for September 15, and December 8, 1910, there appeared descriptions of apparatus for the sterilization of water by ultra-violet rays. This new process must be considered as still in an experimental stage, although an examination of the last-named reference discloses a sectional sketch of an installation at Marseilles, France.

Finally, it should be noted that the old and tried processes of water purification continue to give satisfactory results. These include sedimentation, slow sand filtration and rapid or mechanical sand filtration. A coagulant (generally sulphate of alumina, but sometimes iron and lime) is used with rapid filters, and latterly this is supplemented with hypochlorite, as already stated. Sedimentation, alone or with a coagulant or a coagulant and hypochlorite also, is gaining in favor. The fine slow sand filtration plants built by the city of Philadelphia will have a combined daily capacity of 307,000,000 gallons, when additions to one of the smaller plants, under way in 1910, are completed. The plants range from 12,000,000 to 220,000,000 gallons in daily capacity, and their aggregate filtering area will be 86.95 acres, or more than one-eighth of a square mile. The introduction of filtrated water at Philadelphia, and also at Pittsburgh, Pa., has been followed by a marked reduction in the prevalence of typhoid fever. See CHEMISTRY, *Ultra-Violet Light*; and HYGIENE.

**WATER SUPPLY.** See WATER PURIFICATION and WATER WORKS.

**WATERWAYS, INTERNAL.** The movement for the development of internal waterways, while not attended with any sensational results in 1910, continued to receive attention both through the various organizations and through operations by government engineers. The Mississippi River Commission spent \$2,292,092 on this work during the fiscal year, while in addi-

tion to this further sums were spent in the maintenance of channels in that river and for special purposes in connection with its navigation.

In September the third annual convention of the Atlantic Deep Waterways Association was held at Providence, R. I. About 600 delegates were present from the States on the Atlantic seaboard. It was reported that the survey from Boston to North Carolina for this waterway had been practically completed. Estimates have been made for each section of the waterway and inlets, while the routes have been selected, except from Boston to Narragansett Bay. It was the belief of the association that this canal from Maine to Florida would not only increase the safety of vessels using it, but would remove barges and slow-going transports out of the way of ocean travel, and in this way make the Atlantic coast safer for line steamers. The next meeting of the association is to be held at Richmond, Va.

On December 7 the National Rivers and Harbors Congress convened at Washington. More than 3000 delegates were present. President Taft delivered the opening address. He declared that the problem which must be solved by the association and by Congress is the union and co-operation of railroads and rivers. He said that the terminal difficulties with respect to river transportation are the difficulties to be overcome before the question can be solved. See CONSERVATION AND DOCKS AND HARBORS.

**WATER-WORKS.** On the operating side of water-works increased attention is being paid to efficiency of service, and to reforms of accounting methods. A voluminous committee report on uniform accounting, with explanatory text and terminology, was presented to the American Water-Works Association in 1910 by Mr. Albert Mahr, of Baltimore, Md. The scheme presented is in general accord with the similar work done by the U. S. Census Bureau, under the direction of Mr. L. G. Powers, Chief Statistician. Forestry operations on land bought for the sanitary protection of public water-supplies are being conducted by a few cities and water companies. The use of metres for the reduction of water waste and as the only equitable way of distributing the cost of water-service is being extended. See also WATER PURIFICATION, and AQUEDUCTS.

**WATTS, MARY STANBERRY.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**WATSON, WILLIAM.** See LITERATURE, ENGLISH AND AMERICAN, *Poetry and Drama*.

**WEALE, B. L. PUTNAM.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**WEATHER.** See METEOROLOGY.

**WEBB, F.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**WEBSTER, SIDNEY.** An American lawyer and publicist, died May 30, 1910. He was born in Gilmanton, N. H., in 1828, and graduated from Yale College in 1848. He studied at the Harvard Law School and was admitted to the bar in 1851, taking up practice in Boston. He had been a warm friend of Franklin Pierce and on the election of the latter to the presidency Mr. Webster was made his private secretary, a post which he filled throughout Pierce's term. During this time he became intimate with many statesmen and public men. Three years after his service in Washington he removed from

Boston to New York, where he resumed the practice of law. He formed a partnership with James Craig. Following this he remained in active practice in New York City for more than thirty years. He made a specialty of customs law and international law, and came to be recognized as an authority in these branches. The most of his practice was in Federal cases. At the time of the Cuban insurrection in the late 60's he acted as counsel for the Spanish government and served that government in that capacity for several years. He had married the daughter of Hamilton Fish, who was at that time Secretary of State, and this relation taken in connection with his employment by the Spanish government caused him some embarrassment at the time of the *Virginian* case, when that American vessel, which was carrying arms and recruits to the rebels in Cuba, was seized by a Spanish man-of-war, and twenty of her passengers were shot. Mr. Webster was accused of having used his social and family influence in the aid of his client, the Spanish government, but he was able to show that this was not true. Mr. Webster was one of the lawyers who prepared the Tilden case before the Electoral Commission of 1877. He was several times offered the Democratic nomination to Congress, but refused. Mr. Webster became one of the most intimate friends of E. H. Harriman as a result of their association on several railroad directorates, and in 1908 Mr. Harriman wrote to Mr. Webster a letter criticizing President Roosevelt very frankly. The notes of this letter were stolen by the stenographer who had taken it and were afterwards published. This affair brought considerable notoriety to Mr. Webster and was a source of much discussion at the time. Mr. Webster was the author of *Two Treaties of Paris and the Supreme Court* (1901), and of monographs on topics of international and constitutional law. He was also a frequent contributor to newspapers.

**WEDGWOOD, A. F.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**WEIGALL, A. E. P.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**WEIGHTS AND MEASURES.** Throughout the United States in 1910 considerable attention was being paid to the subject of weights and measures and this interest both occasioned and came as the result of vigorous attempts at the suppression of fraudulent weights and measures. Not only was attention being directed to palpable and direct fraud but various practices that had become common under the guise of trade customs were being attacked and the coöperation of honest merchants and manufacturers was being secured for their suppression. So widespread and serious were both evils that when active commissions and inspectors of weights and measures began to investigate the subject there was straightway aroused a vast public interest and as a result several State legislatures amended or passed new statutes aiming at stricter regulations and the use of correct standards. Then in many instances local or municipal authorities provided means to enforce properly such legislation. Thus in New York City where a peculiarly lax condition of affairs and inadequate support of the municipal bureau of weights and measures had been prevalent for many years, there was a vigorous effort made to enforce existing statutes and ordinances and a

widespread condition of false weights and measures was unearthed. These were both used in wilful fraud and also inaccurate, while so-called trade customs, such as false labels or branding had made common the use of arbitrary measures and various containers quite different from the values marked upon them or which were assumed by the purchaser. Throughout the State of New York, Dr. Fritz Reichmann, Superintendent of Weights and Measures, traveled and aroused the interest of local officials and the general public. This State duly revised and increased its laws bearing on the subjects of weights and measures and chapter 20 of the Consolidated Laws—General Business—was amended by the passage of Chapters 187 and 410 of the Laws of 1910. This chapter not only defined the various units of weight and measure, but also the duties of the various State, county and city officials charged with the custody of standards and the inspection. In 1909 other legislation on the subject had been passed so that New York was getting to a satisfactory condition so far as legal regulation of weights and measures was concerned. One of the most important innovations was provision for the sealing and marking of various glass jars used for the sale of milk.

In Massachusetts also important amendments were made to the very satisfactory laws governing weights and measures and improvements were being made in a very efficient system of inspection, under the direction of Daniel C. Palmer, Commissioner of Weights and Measures. In New Jersey also interest was being aroused and in many States old laws were being examined with a view to their enforcement while new statutes were being urged in many quarters. Each year there is a conference of State sealers of weights and measures at Washington at the National Bureau of Standards. The fifth of these conferences was held February 25, 1910, and was addressed by Secretary of Commerce and Labor, Charles Nagel. The problem of the systematic regulation of weights and measures was recognized as one of great perplexity on account of the different jurisdictions involved, but progress was being made in securing uniformity throughout the States of the Union. At each conference there are increased representation and evidences of greater interest by State administrations and the public at large.

**WEI-HAI-WEI.** A territory on the north coast of Shantung province, China, leased to Great Britain July 1, 1898, "for so long a period as Russia shall remain in possession of Port Arthur." Though Port Arthur is lost to Russia, a British commissioner (1910, Sir J. H. Stewart Lockhart) continues to administer the territory. Area, about 285 sq. miles; population, about 150,000. Revenue (1908-9), \$9716; expenditure, \$19,686; grant-in-aid, \$10,000.

**WEIR, LEVI CANDEE.** Former president of the Adams Express Company, died March 28, 1910. He was born in New Haven, Connecticut, in 1842, and when a boy removed to Cincinnati, where he became an expert telegrapher. He worked in St. Louis and Nashville. At the outbreak of the Civil War he joined the Military Telegraph Corps and for a time served under General Halleck. At the battle of Shiloh he performed services for which he was highly commended. Shortly before the close of the war he accepted an opportunity to enter the express business. Starting at the bottom he rose rapidly through the various stages of pro-

motion, and in 1894 was elected president of the Adams Express Company. He continued in this position until May, 1909, when he resigned on account of ill health. In addition to his express interests he was director in a number of financial institutions and railways.

**WELLESLEY COLLEGE.** An institution for the higher education of women, at Wellesley, Mass., founded in 1875. The number of students enrolled in the several departments of the college in 1910-11 was 1375, while the faculty numbered 125. During the year Associate Professors Elizabeth F. Fisher, geology; Malvina Bennett, elocution; Mary S. Case, philosophy; Vida D. Scudder, English literature; Eleanor M. Gamble, psychology; Alice V. Waite, English language and composition, and Margaret H. Jackson, Italian, were made full professors in their respective departments. The following instructors were made associate professors: Valentine J. Puthod, French; Edith R. Abbot, art; Louise S. McDowell, physics. The college received during the year \$60,461, the bulk of which is through the bequests of the late Ellen A. Kendall, of Boston; and the gift of a gymnasium at a cost of \$100,000 from the trustees, former pupils and friends of the Boston Normal School of Gymnastics. A library, at a cost of \$125,000, was presented to the college by Andrew Carnegie. The President, Caroline Hazard, resigned her office in July, 1910, and the dean of the college is in executive charge, pending the selection of the new president.

**WELLMAN, WALTER.** See AERONAUTICS.

**WELLS, H. J.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**WERNER, R. M.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**WESLEYAN METHODIST CONNECTION OF AMERICA.** An evangelical denomination of Methodist principles, founded in 1843 by members of the Methodist Episcopal Church, who strongly opposed the institution of slavery. According to the religious census made by the United States government in 1906, and published in 1910, the denomination numbered in 1906 20,043 communicants, with 533 ministers and 489 churches. The church property in that year was valued at \$37,117. The membership in 1910 was practically the same. Among the educational institutions under the control of the denomination are Houghton Seminary at Houghton, N. Y., Miltonvale College at Miltonvale, Kansas, and Central College at Central, S. C. The Indiana Conference has a school under its own control, but this will ultimately come under the denomination's control. The official paper of the denomination is the *Wesleyan Methodist*, published at Syracuse, N. Y. The highest authority of the church is the quadrennial General Conference, which meets in October, 1911.

**WESLEYAN UNIVERSITY.** An institution of higher learning at Middletown, Conn., founded in 1831. The number of students enrolled in the college of liberal arts in 1909-10 was 365, while the faculty numbered 35. The amount of productive funds of the university was \$1,665,000 and the income in 1909-10 was \$113,846. The college gave up its co-educational feature in 1909 and is now a college for men only. The President is William Arnold Shanklin, L. H. D., LL. D.

**WESTERN AUSTRALIA.** A state of the

**Australian Commonwealth.** Capital, Perth. Area, 945,920 sq. miles. Estimated population, June 30, 1910, 282,856. For details, see AUSTRALIA. The executive authority is vested in a governor, appointed by the British Crown, and assisted by a responsible ministry. The legislative power devolves upon a parliament of two elective houses, the Legislative Council and the Legislative Assembly. Governor in 1910, Sir Gerald Strickland; Premier, Frank Wilson.

**HISTORY.** The Premier, Sir Newton Moore, in an address on July 26 announced an increase of £383,000 in the revenue over last year and a surplus of £210,000. The programme of legislation included an extension of the franchise for the Legislative Council, liquor reform, redistribution of seats and plans for a new university. Toward the end of September the Ministry resigned and the premiership was taken by Mr. Wilson, formerly Minister of Works. Changes were made within the Cabinet, but its personnel remained the same. In his budget speech on October 25, the Premier pointed to the prosperity of the previous year and to the prospects for its continuance. Gold was discovered at Bullfinch and the new field promised well. In the latter part of November, Broome, the centre of the pearl industry, was partly destroyed by a cyclone.

#### WESTERN RESERVE UNIVERSITY.

An institution of higher learning at Cleveland, O., founded in 1826. The total number of students in the university in 1910-11 was 1302, divided as follows: Adelbert College, 405; College for Women, 303; Medical Department, 166; Law School, 168; Dental School, 88; Library School, 66; School of Pharmacy, 93. The faculty in 1909-10 numbered 228. Among the changes in the faculty during the year were the following: Joseph Leopold Borgerhoff was promoted to be Professor of Romance Languages; Howell Merri-man Haydn was promoted to be Professor of Biblical Literature; Charles Edwin Clemens was promoted to be Professor of the History and Theory of Music; James Elbert Cutler was promoted to be Professor of Sociology; Augustus Raymond Hatton was promoted to be Professor of Political Science. In Adelbert College, Charles Josiah Smith, Professor of Mathematics and Samuel Ball Platner, Professor of Latin, returned to the university after a year's absence. Noteworthy benefactions for the year included a new building for the College for Women, the gift of Mr. Samuel Mather and his children as a memorial to Mrs. Samuel Mather. It is to cost in excess of \$250,000. The college also received toward a \$1,000,000 additional endowment, \$250,000 from Mr. John D. Rockefeller and \$250,000 from Mr. H. M. Hanna. The requirement for admission to the Medical School was raised during the year. A college degree is now required for unconditional entrance. For conditioned entrance three years of college work are required and the degree of Bachelor of Arts must be secured before admission to the junior class in the Medical Department. Beginning with the year 1911-12 the Law School will be a graduate school. The resources of the university amount to \$5,000,000. The President is Charles F. Thwing.

**WEST VIRGINIA.** One of the South Atlantic Division of the United States. It has an area of 24,170 square miles. Its capital is Charleston.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 1,221,119 as compared with 958,800 in 1900 and 762,794 in 1890. The increase in the decade 1900 to 1910 was 27.4. The State ranks twenty-eighth in point of population, the same relative rank which it held in 1900. The population of the larger cities and towns will be found in the tables in the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** West Virginia is one of the most important of the States in the production of coal. There were produced, in 1909, 51,466,010 tons as compared with 41,897,843 tons in 1908. The State ranks second in the production of coal, being surpassed only by Pennsylvania. The production of coal in 1910 was estimated by the United States Geological Survey to have exceeded 60,000,000 tons. The increase is largely due to the benefit received from the shut down of the mines in Illinois on account of the strike. Most of this increase was in the southern portion of the State although the northern counties showed increased activity. West Virginia ranks second among the States in the quantity of coke produced. The production in 1909 was 2,637,132 short tons, valued at \$5,267,054. Large quantities of petroleum were produced. The production in 1909 was 10,745,092 barrels, as compared with a production in 1908 of 9,523,176 barrels. The value of the product of 1909 was \$17,642,283, as compared with a value in 1908 of \$16,911,865. The new oil developments of 1909 were largely confined to regions in which some development had already been made in 1908. The clay products of the State are important. These were produced in 1908 to the value of \$3,261,756.

**CHARITIES AND CORRECTIONS.** The charities and corrections of the State are under a Board of Control. The total expenditures for the expenses of this body during the year amounted to \$23,571. The institutions under the control of the State, with the expenditures for their support during 1910 are as follows: Miners' Hospital, No. 1, \$31,255; Miners' Hospital, No. 2, \$14,517; Miners' Hospital, No. 3, \$20,028; King's Daughters' Hospital, \$5335; West Virginia Asylum, \$91,441; Weston Hospital for the Insane, \$135,229; Second Hospital for the Insane, \$72,395; West Virginia Reform School, \$44,855; Industrial School for Girls, \$11,731; West Virginia Colored Institute, \$27,047; Bluefield Colored Institute, \$8577; West Virginia Colored Orphans' Home, \$2293; West Virginia School for the Deaf and Blind, \$56,760.

**AGRICULTURE.** The acreage, production and value of leading crops in 1909 and 1910 are given in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	920,000	23,920,000	\$16,266,000
1909.....	880,000	27,672,000	20,448,000
Winter wheat, 1910	410,000	5,125,000	5,228,000
1909.....	370,000	4,810,000	5,435,000
Oats, 1910.....	100,000	2,520,000	1,260,000
1909.....	98,000	2,156,000	1,164,000
Rye, 1910.....	12,000	155,000	140,000
1909.....	11,000	148,000	133,000
Buckwheat, 1910...	25,000	575,000	443,000
1909.....	22,000	499,000	379,000
Potatoes, 1910....	41,000	3,772,000	2,527,000
1909.....	39,000	3,822,000	2,599,000
Hay, 1910.....	675,000	810,000a	12,150,000
1909.....	675,000	844,000	11,225,000
Tobacco, 1910....	20,000	12,800,000b	1,318,000
1909....	14,400	12,600,000	1,663,000

a Tons. b Pounds.

**FINANCE.** The report of the treasurer for the fiscal year ending September 30, 1910, showed a balance in the treasury on October 1, 1909, of \$724,200. The receipts during the year were \$4,011,918, and the total disbursements amounted to \$3,858,437, leaving a balance on hand at the end of the year of \$877,680. The disbursements on account of the general school fund during the year amounted to \$873,976.

#### POLITICS AND GOVERNMENT

There was no session of the legislature in 1910, as the sessions are biennial and the last was held in 1909. The elections on November 8 were for members of Congress only, as the terms of Governor Glasscock and the other State officers do not expire until March 4, 1913. Although the State is normally Republican, and President Taft received a plurality of 26,451 votes in 1908, the Democratic wave which swept over the country included West Virginia, and a Democratic legislature, which has the election of a Senator in 1911, succeeded the Republican legislature of 1909. John W. Davis, Democrat, was elected for Congress in the first district by a plurality of 3408; W. G. Brown, Democrat, was elected in the second district by a plurality of 4485; Adam Littlepage for the third district by a plurality of 1566; John Hamilton, Democrat, was elected from the fourth district, and James A. Hughes, Republican, was elected from the fifth district by a plurality of 2853.

**STATE OFFICERS.** Governor, Wm. E. Glasscock; Secretary of State, Stuart F. Reed; Treasurer, E. L. Long; Auditor, John S. Darst; Attorney-General, Wm. G. Conley; Adjutant General, Chas. E. Elliott; Superintendent of Schools, M. P. Shawkey; Com. of Agriculture, J. M. Milan—all Republicans.

**JUDICIARY.** Court of Appeals: President, Ire E. Robinson, Republican; Associate Justices, George Poffenbarger, Republican; L. Judson Williams, Republican; Henry Brannon, Republican; William N. Miller, Republican; Clerk, W. R. Mathews.

**STATE LEGISLATURE, 1911** Senate, Democrats, 15; Republicans, 15. House, Democrats, 63; Republicans, 23. Joint Ballot, Democrats, 78; Republicans, 38. Democratic majority—Senate, 0; House, 40; Joint Ballot, 40.

**WHARTON, EDITH.** See **LITERATURE, ENGLISH AND AMERICAN, Fiction.**

**WHEAT.** **WORLD'S CROP.** The wheat crop of the world in 1910 was estimated at 3,500,000,000 bushels or about the same as the crop of year before.

The yield the world over was generally satisfactory and while drought interfered at times in certain countries, particularly in the United States, Russia, and Argentina, the production came well up to the average and the year as a whole stood second only to 1909 in total world production. Russia as in 1909 led all countries. The wheat acreage of Russia has increased from 42,000,000 to 71,000,000 during the last 15 years. With her large yield and with large supplies carried over from the heavy crop of 1909, Russia was by far the most important wheat exporting country of the world in 1910. The United States ranked next to Russia and was followed by France with a yield of 268,000,000 bushels and 16,120,300 acres. The French yield was considerably below the average, and the importation of about 55,000,000 bushels was required to supply the home demand.

**UNITED STATES.** The United States produced 695,443,000 bushels on 49,205,000 acres in 1910, as against 787,189,000 bushels on 46,723,000 acres in 1909. The total value of the crop based on the price per bushel on the farm December 1 of each year was \$621,443,000 in 1910 and \$730,646,000 in 1909. The winter wheat production of 1910 amounted to 464,044,000 and the spring wheat production to 231,399,000 bushels. The fall of 1909 was very favorable for sowing winter wheat. The soil was in good condition for the preparation of the seed bed and contained sufficient moisture for the prompt germination of the seed and for the production of a rapid and satisfactory fall growth. The crop went into the winter with the best prospects but the season proved severe and through alternate thawing and freezing a large loss in acreage had occurred by spring. Large acreage were abandoned in Kansas, Missouri, Nebraska, Illinois, Indiana, and Ohio. On the whole, however, such generally good weather favorable to the growth of the crop prevailed during the latter part of April and in May and June that the previous heavy setbacks were overcome. The experience of the year called attention very forcibly to the recuperative powers of the wheat plant when moisture conditions and the weather in general are favorable during the latter part of its growth. The yield per acre of winter wheat was particularly high in Wyoming, Oregon, Idaho, New York, Colorado, Montana, and Iowa, being 25, 23.7, 23.7, 23.7, 23, 22, and 21.2 bushels respectively, but none of these States has a very large acreage. The average yield per acre in the more important winter wheat growing States was heavy enough to make the general average for the country quite satisfactory as compared with other years. Kansas, the largest winter wheat producing State, suffered the greatest proportionate reduction in acreage and total yield. This State produced 61,060,000 bushels on 4,300,000 acres in 1910 and 85,478,000 bushels on 5,895,000 acres in 1909. Other important winter wheat States and their production in 1910 were as follows: Indiana produced 40,981,000 bushels on 2,627,000 acres; Nebraska 34,650,000 bushels on 2,100,000 acres; Illinois 31,500,000 bushels on 2,100,000 acres; Ohio, 31,493,000 bushels on 1,944,000 acres; Pennsylvania 27,697,000 bushels on 1,556,000 acres; Oklahoma 25,363,000 bushels on 1,556,000 acres, and Missouri, 25,130,000 bushels on 1,821,000 acres.

The spring wheat production of the country in 1910 amounted to 231,399,000 bushels and the area to 19,778,000 acres. Weather and soil conditions in the spring of 1910 were favorable to a good start of the crop. Owing to the comparatively light precipitation during the fall and winter, the soil moisture reserve was low and when later in the season dry weather prevailed the supply of soil moisture became inadequate and the condition of the crop was reduced, particularly in North and South Dakota and Minnesota. In North Dakota the average yield of spring wheat per acre was only 5 bushels, and the average for the entire country was only 11.7 bushels. Minnesota yielded 94,080,000 bushels; South Dakota 46,720,000 bushels; North Dakota 36,105,000 bushels; and Washington 11,745,000 bushels. The areas devoted to the crop in the States were 5,880,000, 3,650,000, 7,221,000, and 810,000 acres respectively.

## WHEAT PRODUCTION

The following figures are taken from the *Crop Reporter* published by the Bureau of Statistics, U. S. Department of Agriculture.

Countries	1909	1910
	Bushels	Bushels
United States .....	737,189,000	695,443,000
Canada .....	166,744,000	149,990,000
Mexico .....	10,000,000	10,000,000
Argentina .....	156,162,000	131,010,000
Chile .....	17,743,000	23,516,000
Uruguay .....	8,595,000	9,000,000
Austria-Hungary .....	186,076,000	258,905,000
Belgium .....	15,506,000	13,000,000
Bulgaria .....	32,071,000	49,126,000
Denmark .....	3,829,000	4,225,000
Finland .....	135,000	135,000
France .....	356,193,000	268,364,000
Germany .....	138,000,000	141,884,000
Greece .....	7,000,000	7,000,000
Italy .....	189,959,000	153,337,000
Montenegro .....	200,000	200,000
Netherlands .....	4,158,000	4,324,000
Norway .....	313,000	294,000
Portugal .....	5,000,000	6,000,000
Rumania .....	56,751,000	110,761,000
Russia (European) .....	711,478,000	699,413,000
Russia (Asiatic) .....	71,792,000	76,282,000
Servia .....	13,962,000	10,000,000
Spain .....	144,105,000	137,448,000
Sweden .....	6,978,000	7,450,000
Switzerland .....	3,568,000	3,417,000
Turkey (European) .....	30,000,000	30,000,000
Turkey (Asiatic) .....	35,000,000	35,000,000
United Kingdom .....	65,188,000	60,017,000
British India .....	284,361,000	357,941,000
Cyprus .....	2,600,000	2,600,000
Japanese Empire .....	22,235,000	20,329,000
Persia .....	16,000,000	16,000,000
Algeria .....	34,769,000	39,374,000
Egypt .....	25,000,000	25,000,000
Sudan .....	500,000	500,000
Tunis .....	6,430,000	5,512,000
Union of S. Africa .....	2,500,000	2,500,000
Australia .....	64,663,000	93,263,000
New Zealand .....	9,049,000	8,934,000

**WHEELER, E. R.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**WHETHAM, C. D.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**WHETHAM, W. C. D.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**WHISKY.** See LIQUORS, FERMENTED AND DISTILLED.

**WHITE, ANDREW D.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**WHITE, ANNA.** An American Shaker, the head of the North Family Shakers at Mount Lebanon, New York, died December 15, 1910. She was born in Brooklyn in 1831, the daughter of Robert White, a wealthy Quaker merchant of New York City. At the age of 18 she joined the Shakers and lived uninterruptedly at Mount Lebanon, first as a novice, then as a sister, and for thirty years prior to her death the head of the largest Mount Lebanon Shaker family. The fortune which came to her with the death of her father was devoted to the Shaker Society. She wrote the history of Shakerism and was identified with many outside progressive movements. She was president of the Peace Society, which held a great national reunion at Mount Lebanon in 1906, and when the Shaker women organized their branch of the Woman's Council of the United States she was elected its president. She opened a market for the handiwork of the Shakers of New York and other cities.

**WHITE, EDWARD DOUGLASS.** An American jurist, appointed December 11, 1910, Chief Justice of the Supreme Court of the United States. He was born in the parish of Lafourche,

La., in 1845 and was educated at the Jesuit College, New Orleans, and Georgetown University. He served throughout the Civil War in the Confederate army, and in 1868 was admitted to the bar. In 1874 he was elected a member of the State Senate and in 1878 was appointed associate justice of the supreme court of Louisiana. From 1891 to 1894 he was United States Senator from Louisiana. In the latter year he was appointed an associate justice of the Supreme Court of the United States. Justice White is a Democrat in politics and he is considered to be one of the most learned and efficient members of the Supreme Court. Although he is a Southerner by birth his record on the bench has shown at times strong Federal leanings. He sided with the minority in upholding the income tax when it was tested under the administration of Grover Cleveland, and also sustained the government in the insular cases. In the Northern Securities case, however, he joined with the minority in deciding against the government. These are the most important cases in which Justice White has participated. The appointment of Justice White as Chief Justice was generally approved throughout the country.

**WHITE, HORACE.** An American public official, who became on October 7 governor of New York to succeed Charles E. Hughes who resigned to become a member of the Supreme Court. He was born in Buffalo in 1865 and graduated from Cornell University in 1887. He graduated from the Columbia School of Law in 1889 and from 1900 practiced law at Syracuse. From 1896 to 1908 he was a member of the New York Senate and in 1909 was elected lieutenant-governor of the State.

**WHITE, J. C.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**WHITE SLAVE TRAFFIC.** See PROSTITUTION.

**WHITE, WILLIAM ALLEN.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**WHITING, LILLIAN.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**WHITMAN, CHARLES OTIS.** An American zoölogist, died December 6, 1910. He was born at Woodstock, Me., in 1842, and graduated from Bowdoin College in 1868. He studied at Leipzig, receiving the degree of Ph. D. in 1878. In the following year he was made a fellow of Johns Hopkins University. In 1880-81 he was professor of zoölogy at the Imperial University of Japan. He was stationed at the Naples Zoological Station in 1882, and from 1883 to 1885 was assistant in zoölogy at Harvard University. From 1886 to 1889 he was director of the Allis Lake Laboratory and from 1889 to 1892 was professor of zoölogy at Clark University. In 1892 he was appointed professor and head of the department of zoölogy, and curator of the zoölogical museum at Chicago University and he held this position until the time of his death. From 1888 to 1908 he was also director of the Marine Biological Laboratory at Woods Hole, Mass. He was an editor of the *Journal of Morphology*, of the *Biological Bulletin* and of *Biological Lectures*.

**WHITNEY, HARRY.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**WHITNEY, JAMES LYMAN.** An American librarian, died September 25, 1910. He was born at Northampton, Mass., in 1835, and graduated from Yale College in 1856. For a time he

held a place in Unity Library in Yale College. About forty years before his death he became connected with the Boston Public Library, and after steady promotion became chief librarian. Upon giving up that place in 1903 he was made chief of the department of documents and statistics, and of the department of manuscripts. During his service in the library he edited the Ticknor Catalogue of Spanish Literature and many other publications of the library. He was a member of various historical and literary societies.

**WHITNEY, MYRON W.** An American singer, died September 19, 1910. He was born at Ashby, Mass., in 1835. When he was sixteen years of age he went to Boston where, in 1858, he made his first appearance in a performance of the Messiah for the Handel and Haydn Society. For nearly ten years he sang in concerts. He then studied music in Florence, Italy, and London. In the latter city he made a special study of the oratorio with Randegger, and there gained a reputation as a concert singer, which caused his recall to Covent Garden after his return home. He made a tour of the United Kingdom under the direction of Benedict and Sullivan and finished afterwards a successful season in London. He then returned to the United States and made a tour of the country under the direction of Theodore Thomas. In 1876 he sang at the Centennial Celebration and at the Cincinnati Festival, held in 1877. Mr. Whitney's greatest success was in oratorio rather than in opera singing, and perhaps his greatest triumphs were at the concerts of the Handel and Haydn Society of Boston, the New York Oratorio Society and the Cincinnati festivals. His repertoire included "Elijah," "Israel in Egypt," "The Messiah," "Creation," "Tower of Babel," and "Damnation of Faust." He was for a time the principal bass in the Boston Ideal Opera Company and in the American Opera Company. He appeared in many of the Gilbert and Sullivan operas.

**WHITTREDGE, WORTHINGTON.** An American artist, died February 25, 1910. He was born in Ohio in 1820 and studied landscape and portrait painting in Cincinnati after leaving school. He went abroad in 1849 and continued his studies in London, Paris, Antwerp, Düsseldorf, and Rome until 1859. Returning to New York he opened a studio and became an associate member of the National Academy of Design. In 1862 he became a full member and was president of the Academy in 1875-6.

**WHYMPER, C.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**WIEL, A.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**WIGGIN, KATE DOUGLAS.** See DRAMA.

**WILCOX, D. F.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**WILL, AUGUST.** An American artist of German birth, died January 23, 1910. He was born at Weimar, Germany, in 1834 and came to the United States at the age of twenty-one. For thirty-eight years he was a teacher of art and numbered among his pupils many well known American artists. He maintained a studio at Broadway and Astor Place, New York City, for nineteen years. Many of his illustrations appeared in the *Century*, *Harper's*, and *Scribner's* magazines.

**WILLARD, DE FOREST.** An American surgeon and philanthropist, died October 15, 1910.

He was born in Newington, Conn., in 1846. He was educated in the public schools and studied medicine at the University of Pennsylvania, graduating in 1867. From 1889 to the summer of 1910 he was professor of orthopædic surgery in the University of Pennsylvania. He also acted as surgeon in several hospitals in Philadelphia. He was one of the most noted surgeons in the country and he held many offices of honor and distinction in learned societies. A large portion of his work was among the poor of Philadelphia. Among his published works are *Artificial Anæsthesia* (1891) and *Surgery of Childhood, Including Orthopædic Surgery*. He also contributed numerous articles to medical journals.

**WILLIAMS COLLEGE.** An institution of higher learning at Williamstown, Mass., founded in 1793. The total enrollment for the year 1910-11 was 560, of which number 535 were candidates for the degree of Bachelor of Arts and 25 for the degree of Master of Arts. The faculty numbered 57. The productive funds amounted to \$1,343,663 and the income for the year 1909-10 was \$63,962. The library contains about 67,000 volumes. The President is Harry A. Garfield.

**WILLIAMS, Sir EDWARD LEADER.** An English engineer, died January 1, 1910. He was born at Worcester in 1828 and began his professional career in that city. His formal education was obtained at private schools. He devoted his attention almost entirely to river and canal work and until 1850 was engaged in undertakings for improving the navigation of the waterway between Stourport and Gloucester. He afterwards acted as engineer of the Great Northern Railway which was then being constructed through Lincolnshire. For several years he was engaged on the works of the Admiralty Pier, Dover, and in 1856 became engineer to the River Weaver Trust. Here he made great improvements, including the construction of a lift to raise vessels vertically to a height of 52 feet from the Trent and Mersey Canal to the Weaver. When in 1882 it was decided to build the Manchester Ship Canal, Mr. Williams was called upon to assist in the preliminary survey and was afterwards appointed one of the joint engineers of the projected enterprise. His scheme for the construction of the canal was ultimately adopted. Its accomplishment required twelve years and throughout that period he acted as chief engineer. In the construction of the canal he encountered and overcame many engineering difficulties. He was the author of many papers on engineering subjects and contributed articles on canals to the *Encyclopædia Britannica*.

**WILLIAMS, GEORGE HENRY.** An American lawyer and public official, died April 4, 1910. He was born at New Lebanon, N. Y., in 1823 and was educated in the public schools and at Pompey Academy. He studied law in New York, and in Iowa, whither he removed in early youth. He was admitted to the bar in 1844. In 1847 he was elected judge of the first judicial district of Iowa and was presidential elector for Iowa in 1852. In the following year he was appointed chief justice of Oregon Territory and was a member of the constitutional convention which framed the constitution for that State. From 1855 to 1867 he was United States Senator from Oregon. He was a member of the High Joint Commission to settle the Alabama claims. From 1871 to 1875 he was Attorney-General of

the United States in General Grant's cabinet. He was nominated in 1873 for the Supreme Court of the United States, but the Senate refused to confirm him to that post. From that time on until shortly before his death he was continuously engaged in the practice of law in Portland, Oregon. From 1902 to 1905 he served as mayor of that city. He was the last survivor of the officials who served in President Grant's cabinet.

**WILLIAMS, H. N.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**WILLIAMS, S. C.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**WILLIAMSON, A. M.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**WILLIAMSON, C. N.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**WILSON, BECKLES.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**WILSON, Lady SARAH.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**WILSON, W. L.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**WINANS, SAMUEL ROSS.** An American educator, died July 25, 1910. He was born at Lyons Farm, N. J., in 1855, and graduated from Princeton College in 1874. From 1876 to 1881 he was tutor in Greek at Princeton. In 1881-83 he was adjunct professor in Greek and instructor in Sanskrit and from 1883 to the time of his death he was professor in Greek and instructor in Sanskrit. From 1889 to 1903 he was dean of the faculty of Princeton. He edited *Xenophon's Memorabilia* (1880), *Symposium* (1881), and *Libri Socratici* (1883).

**WINCHESTER, C. T.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**WINDOW GLASS TRUST.** See TRUSTS.

**WINDWARD ISLANDS.** The Windward, or southern, group of the British West Indian islands includes Barbados, St. Lucia, St. Vincent, Grenada (qq. v.), and the Grenadines (half under St. Vincent, half under Grenada). For administrative purposes all the separate colonies are under one governor and commander-in-chief (1910, Sir James Hayes Sadler), with headquarters at St. George's, Grenada; but each has its separate administrator and institutions. There is no common legislature, laws, revenue, or tariff.

**WINES.** See LIQUORS, FERMENTED AND DISTILLED.

**WINES, F. H.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**WINGFIELD, Sir EDWARD.** An English public official, died March 5, 1910. He was born in 1834 and was educated at Winchester and New College, Oxford. He was admitted to the bar in 1859. Six years later he was appointed one of the legal Assistant Under-Secretaries of State in the Colonial Office, and for many years he had special charge of West Indian business. In 1897, during the administration of Mr. Chamberlain, he became permanent Under-Secretary of State, but was obliged to retire at the end of three years on account of a paralytic stroke brought on by overwork. In 1899 he was created a K. C. B. and from 1897 to 1900 was Secretary of the Order of St. Michael and St. George.

**WINTER, WILLIAM.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**WIRELESS TELEGRAPHY.** The record

of wireless telegraphy in 1910 was such as to characterize it as a well established art in daily competition with other means of communication and well entrenched in its peculiar field. Much credit is due to the narrower ranges of tuning which have been attained and the clear transmission of the group frequency of 1000 per second. The quenched spark has come into quite general use and marks a reversion to an original type after ten years of experimentation with various substitutes.

The receiving circuits have tended to return to the simple two circuit tuner as the more complex arrangements have failed to produce superior tuning. Solid rectifiers have largely supplanted other types in detecting apparatus. Marconi has brought out a new valve receiver and a new electrolytic detector using an amalgam of tin that is worthy of note. Marconi also secured a patent on a duplex plan by which the sending and receiving devices are rendered operative and inoperative alternately in rapid succession, so avoiding the necessity of synchronism at the two stations.

The Marconi Company resumed transatlantic service and signals were received at its station in Argentina from Nova Scotia and from Ireland, a distance of 5600 miles. The Pacific has been practically covered as ships en route from America to Australia have been in touch with Honolulu throughout almost the entire journey. Under exceptional conditions a distance of 6500 miles has been attained but the daily working range of the best equipped stations is scarcely greater than 3000 miles.

Regular overland communication at distances of 1000 miles is now carried on. The use of wireless equipment has been successfully accomplished from aeroplanes, balloons, submarine vessels and railway cars.

The highly complicated state of patent litigation over wireless inventions in America has been a decided drag upon progress, both commercial and scientific. The technical research connected with space telegraphy has necessitated the working out of new concepts and much apparatus of extreme delicacy. It has been reaching a much sounder scientific basis than hitherto and relief from many of the crudities of present equipment is promised by the more novel and advanced researches in progress.

In addition to its employment for strictly commercial purposes, wireless telegraphy has brought relief, in at least six instances during the past year, to vessels in distress; in the absence of which succor, it is not at all certain that more than a few lives could have been saved. There is still room for improvement, however, in the power and completeness of the equipment of many passenger carrying vessels, as a recent instance on the Atlantic showed, where a steamer was not in communication for five or six days, and arriving two days overdue, reported that she was "too far away to send messages." This is hardly excusable in the present state of the art.

**WIRELESS TELEPHONY.** Throughout 1910 the field of wireless telephony remained practically barren of new achievements. Successful communication was carried on between French vessels over a distance of sixty-nine miles and Fessenden in America reported a distance of 200 miles. Statements have been published in the newspapers from time to time of successful communication

over considerable distances, but on investigation, these have usually turned out to have been due to the accidental existence of proper conditions, and a repetition of the trial proves unsuccessful, as the working of the apparatus can not be relied upon. Inventors seem still to adhere to the arc-and-microphone type of sending apparatus, and not much progress is reported.

**WISCONSIN.** One of the East North Central Division of the United States. It has an area of 56,066 square miles. Its capital is Madison.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 2,333,860 as compared with 2,069,042 in 1900 and 1,693,330 in 1890. The increase in the decade 1900 to 1910 was 12.8 per cent. The State ranks thirteenth in point of population, the same relative rank which it held in 1900. The population of the larger cities and towns will be found in the tables of the article UNITED STATES CENSUS.

**MINERAL PRODUCTION.** This State is not notable for its mineral production, and the most valuable single product is stone. The value of these products in 1908 was \$2,850,920. The State ranks second in the production of spelter and in 1909 20,381 tons were produced, as compared with a production in 1908 of 17,538 tons. The production of lead in 1909 amounted to 3238 tons as compared with a production of 4013 tons in 1908. The Menominee iron range, from which was produced in 1909 4,875,385 long tons of iron ore, is partly in Wisconsin and partly in Michigan. A small quantity of coke is produced and the production of lime is considerable. Other mineral products are sand and gravel, cement, pig iron and crystalline quartz.

**AGRICULTURE.** The acreage, production and value of leading crops for 1909 and 1910 are given in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	1,575,000	51,188,000	\$26,618,000
1909.....	1,533,000	50,589,000	30,353,000
Winter wheat, '10	67,000	1,340,000	1,233,000
'09	59,000	1,204,000	1,156,000
Spring wheat, '10	124,000	2,319,000	2,133,000
'09	120,000	2,280,000	2,189,000
Oats, 1910.....	2,320,000	69,136,000	23,506,000
1909.....	2,280,000	79,800,000	31,122,000
Barley, 1910.....	866,000	22,429,000	14,355,000
1909.....	866,000	24,248,000	13,579,000
Rye, 1910.....	305,000	4,880,000	3,465,000
1909.....	290,000	4,727,000	3,214,000
Buckwheat, 1910	14,000	196,000	147,000
1909	18,000	221,000	172,000
Flaxseed, 1910...	18,000	180,000	396,000
1909...	20,000	200,000	392,000
Potatoes, 1910...	200,000	24,700,000	9,386,000
1909...	262,000	26,724,000	10,155,000
Hay, 1910.....	2,260,000	2,260,000a	34,126,000
1909.....	2,369,000	3,625,000	34,800,000
Tobacco, 1910...	30,200	31,710,000b	2,378,250
1909...	31,500	37,170,000	3,419,000

a Tons. b Pounds.

**EDUCATION.** The latest statistics relating to education are those for the biennial period 1907-8. The total number of children of school age in the State in that period was 383,497 between the ages of 4 and 20. The total enrollment in public schools was 312,338. The number of teachers employed was 10,581, of whom 1291 were males and 9290 females. The average monthly salary of male teachers was \$64.27 and of female teachers, \$40.81. The total number of free high schools was 209; of State graded schools of the first class, 175; of the second

class, 253. The disbursements for the common schools in 1907-8 were \$10,694,294.

**FINANCE.** The report of the State Treasurer for the fiscal period 1908-10 showed a balance in the treasury on June 30, 1908, of \$1,728,047. The receipts for the two years amounted to \$23,507,463 and the disbursements to \$23,675,523, leaving a balance at the end of the fiscal year 1910 of \$1,559,987. The chief receipts were from railway companies, legacy tax, insurance tax and from State taxation. The chief disbursements were for education, State institutions and executive offices. The State debt at the end of the fiscal year 1908 amounted to \$2,251,000. Of this the larger part is included in the school fund.

**CHARITIES AND CORRECTIONS.** The names of the institutions under State control, with their populations and expenditures for the fiscal year ending June 30, 1910, are as follows: State Hospital for the Insane, 653, \$137,209; Northern Hospital for the Insane, 646, \$133,265; School for the Deaf, 192, \$58,625; School for the Blind, 78, \$32,404; Industrial School for Boys, 365, \$70,482; Wisconsin State Prison, 676, \$130,036; State Public School, 176, \$52,150; Home for the Feeble-minded, 942; \$147,739; Wisconsin State Reformatory, 218, \$42,071; State Tuberculosis Sanatorium, 88, \$67,301. During the year ending June 30, 1909, a number of additional buildings were constructed at the Sanatorium at Wales, which increased the capacity of that institution about 60. A \$75,000 addition was built at the Wisconsin State Reformatory, and a new school house was built at the School for the Deaf at a cost of about \$30,000. A new dormitory was constructed at the Industrial School to cost about \$35,000.

#### POLITICS AND GOVERNMENT

There was no meeting of the State legislature in 1910 as the sessions are biennial and the last was held in 1909. The next session begins January 11, 1911.

**CONVENTIONS AND ELECTIONS.** The year was of unusual political interest in Wisconsin both from a local and from a national standpoint. The municipal elections in April brought about a result surprising to those outside the State who were unfamiliar with the local conditions, in the election of a Social Democrat, Emil Seidel, as mayor of Milwaukee by a plurality of over 7000 votes. Mr. Seidel received 27,622 votes, his Democratic opponent, 20,513, and his Republican opponent, 11,262. In addition to the mayor, the Socialists elected large majorities in the Council and the Board of Supervisors, and the Socialists will control the municipal government for two years. The Socialist campaign was managed by Victor L. Berger, an alderman, who was one of the most prominent Socialists in the country. Mr. Berger was elected Representative to Congress in the election held on November 8. The platforms of all the parties called for the initiative and referendum, while the Socialist programme included municipal ownership of ice and lighting plants, 3-cent fare on the street railroads, cheaper bread, an 8-hour law, and work for the unemployed at union wages. The Socialist success in Milwaukee was not a sudden development. The vote of that party has grown steadily in the last decade. In 1908 it had become almost exactly one-third of the city vote and in 1910 it added 30 per cent. to its own record figures of 1900 leaving both Democrats

and Republicans behind. This condition was largely the result of general dissatisfaction with the city's administration and partly to a very active Socialist propaganda including a weekly house to house distribution of literature by trained squads of workers. Great influence was also exerted by Socialists who were already members of the City Council and by Socialist members of the Wisconsin legislature. The Socialists made prominent features of their campaign opposition to food adulteration, the contract system of public works and graft in the city garbage plant. They were also in favor of municipal ownership of model tenements. In his inaugural address Mayor Seidel named among the reforms for which his administration was pledged to work, improved sanitation of factories, the betterment of conditions under which labor on public works is performed and the establishment of a bureau of municipal research leading to the installation of a complete cost-keeping system for every municipal department. He also pledged his administration to prevent overcrowding of street cars, to compel the street railway companies to clean the cars regularly, to furnish enough cars, to sprinkle the streets between the tracks and to give the shortest routes for transfers. In December the City Council prepared a number of measures to be presented to the legislature providing power for the city administration to undertake many enterprises usually carried on by private interests. These measures included bills to empower the city to establish and maintain four municipal hospitals, to enable the city to take over and operate all public utilities now in private hands that the voters by a referendum vote may decide, and to raise the city bond limit to meet the purchase price; to secure permission to have the city acquire land for building model homes for workmen; empowering the city to build municipal slaughter houses and cold storage plants and empowering the city to have city plumbers do private plumbing and sewer work.

The State and congressional campaign in 1910 included many interesting features, but the most important from a national standpoint was the action of the voters in relation to the policies advocated by Senator La Follette, who was a candidate in the Senatorial primaries held in September for the renomination. Senator La Follette is one of the most prominent and perhaps the most aggressive leader among the insurgent Republican Senators, and strong efforts were made by the regular element of the party in the State and outside to defeat him for renomination. The campaign which preceded the primaries was a spirited one on both sides. Senator La Follette made speeches throughout the State setting forth his views and asking for the support of the voters on the strength of his work as a progressive Senator. The elections on September 6 resulted in his renomination by a plurality of 50,000. This is the most sweeping victory in his career. The progressive Republican candidate for governor, F. E. McGovern, also received a plurality of the votes in the primaries.

The Republican State Convention was held on September 28. It adopted a radical platform, endorsing the views and policies of Senator La Follette. This platform denounced the Payne-Aldrich tariff act as not being in accordance with the pledge of the Republican party. It endorsed and commended the services of progres-

sive Republicans from Wisconsin in the House of Representatives in their efforts to amend the rules in order that the House might again become a representative body. A plank was included calling for the conservation of national resources and for a comprehensive plan for the development and operation of water power plants. The immediate passage of a graduated income tax law was favored as was the election of United States Senators by direct vote of the people. The platform opposed the granting of shipping subsidies by the Federal government and called for the immediate enactment of an employers' liability law. It favored also the thorough investigation of the subject of occupational diseases with a view to the early enactment of suitable legislation.

The Democratic State Convention met on September 28, A. J. Schmitz being the candidate who had received the nomination for governor in the primaries. The platform adopted bitterly denounced the Payne-Aldrich tariff act, called for the conservation of national resources, favored the ratification of the proposed amendment to the United States Constitution and called for the immediate enactment of a dollar a day pension bill, favored the election of Senators by direct vote of the people, opposed the granting of subsidies by the government and especially condemned the ship subsidy bill pending before Congress. Amendments to the primary election law were favored.

The elections held on November 8 resulted in the election of Mr. McGovern, the Republican candidate for governor, and the entire Republican State ticket. William A. Jacobs, the Social Democratic nominee for governor, received 39,547 votes as against 28,583 cast in 1908. Twelve Social Democrats were elected to the Assembly and two to the Senate. Victor L. Berger, a Social Democrat, was elected to Congress from the 5th district. The State legislature is Republican by a joint ballot of 39, thus insuring the re-election of Senator La Follette.

**STATE OFFICERS.** Governor, F. C. McGovern; Lieutenant-Governor, Thomas Morris; Secretary of State, James A. Frear; Treasurer, Andrew H. Dahl; Attorney-General, L. H. Bancroft; Superintendent of Education, C. P. Cary; Commissioner of Insurance, H. L. E. Kern; Commissioners of Public Lands, Secretary of State, Attorney-General, and State Treasurer—all Republicans.

**SUPREME COURT.** Chief Justice, John B. Winslow, Dem.; Associate Justices, Wm. H. Tienlin, Dem.; R. G. Siebecker, Dem.; Andrew J. Vinje, Rep.; John D. Marshall, Rep.; J. C. Kerwin, Rep.; John Barnes, Dem.; Clerk, Clarence Kellogg, Rep.

**STATE LEGISLATURE, 1911.** Senate: Republicans, 27; Democrats, 4; Social Democrats, 2; Assembly, Republicans, 59; Democrats, 29; Social Democrats, 12. Joint Ballot, Republicans, 86; Democrats, 33; Social Democrats, 14. Republican majority—Senate, 21; Assembly, 18; Joint Ballot, 39.

**WISCONSIN, UNIVERSITY OF.** An institution of higher learning at Madison, Wis., founded in 1848. The total attendance in 1909-10 was 4947 divided among the several departments as follows: Letters and Science, 2241; Mechanics and Engineering, 781; Agriculture, 403; Short Course, 561; Law School, 159; Course in Pharmacy, 42; School of Music, 143; Summer Session, 1128; Library School, 30. The faculty

numbered 454. Among the appointments to the faculty during the fiscal year 1910 were the following: Edward Bennett, appointed Associate Professor of Electrical Engineering; Silas Evans, appointed Assistant Professor of Hebrew and Hellenistic Greek; Francis Thompson Havard, Assistant Professor of Mining and Metallurgy; Louis Ralph Jones, Professor of Plant Pathology; Charles Henry Huberich, Professor of Law. The most important gift received during the year was the bequest of Col. William Freeman Vilas, who made the University the residuary legatee of his estate, valued at nearly \$2,000,000. For other gifts to the University during the year see the article **GIFTS AND BEQUESTS**. The total receipts for the year 1909-10 amounted to \$1,740,243 and the total disbursements to \$1,669,920. Practically all the income of the University is received from the State and the United States government. The President is C. R. Van Hise.

**WITEK, ANTON.** See **MUSIC**.

**WILTSHIREITE.** See **MINERALOGY**.

**WOLFF, JULIUS.** A German poet and novelist, died June, 1910. He was born at Quedlinburg in 1834 and after studying philosophy and literature in Berlin he took charge of his father's manufactory at the former place. He was obliged to withdraw from business on account of unfavorable circumstances, and founded in 1869 the *Harzzeitung*. He took part in the Franco-German War and then settled in Berlin, devoting himself exclusively to literary labors. Beside the cycle of war lyrics, *Aus dem Felde* (1871, 3d ed. 1896), celebrating the events of 1870-71, he produced a number of lyric and humorous epics and novels, which became widely and favorably known. His epics and other poems include the following: *Till Eulenspiegel redivivus* (1874, 23d ed. 1896); *Der Rattenfänger von Hameln* (1876); *Der wilde Jäger* (1877); *Lurlei*, a romance, (1886); *Renata* (1892); and *Der fahrende Schüler* (1900); while his novels include: *Der Sulfmeister* (1883); *Der Raubgraf* (1884); and *Die Hohenkönigsburg* (1902).

**WOLFRAMITE.** See **CHEMISTRY**.

**WOLVERTON, SIMON P.** An American lawyer and public official, former Representative in Congress from Pennsylvania, died October 25, 1910. He was born in 1837 and graduated from Lewisburg University in 1860. He was admitted to the bar in 1862. He practiced law in Sunbury, Conn., until 1878 when he was elected to the State Senate, remaining a member of that body until 1888, when he refused a re-nomination. In 1890 he was elected to Congress from the 17th Pennsylvania District and two years later was re-elected. He retired at the end of his second term and devoted his time to the practice of law. For over forty years he was superintendent for the Philadelphia and Reading Railroad and the Philadelphia and Reading Coal and Iron Company. He was one of the most prominent lawyers of Pennsylvania.

**WOMAN SUFFRAGE.** The movement for woman suffrage showed continued progress in 1910. Vigorous educational campaigns were carried on in several countries and there were signs of increasing popular support. Many new associations of suffragists were formed and the membership of the older bodies showed a great increase.

**THE UNITED STATES.** The most notable gain during the year was the adoption by a large

majority in the State of Washington of the constitutional amendment granting the suffrage to women. Such an amendment had been lost in 1889 by a majority of about 19,000 and in 1898 by a majority of about 9000. The legislatures of Oregon, South Dakota, and Oklahoma also submitted woman suffrage amendments to the voters but without success. The constitutional convention of New Mexico rejected complete woman suffrage but gave women the school suffrage and the right to hold local and county school offices. Woman suffrage was also rejected by the constitutional convention of Arizona. Thus at the close of 1910, women had the complete suffrage in Colorado, Idaho, Utah, Wyoming, and Washington. In New York the legislature passed the bill giving women the right to vote on bonding proposals in every town, village and third-class city. The organized bodies of suffragists carried on an active campaign. The Federation of Women's Clubs at its biennial meeting at Cincinnati in May admitted the subject of woman suffrage among their agenda. On May 21 a woman's parade was held in New York City, and much enthusiasm was shown. It was taken as a sign that the movement had entered upon its "militant" stage, as in England. On January 1, 1910, the suffrage clubs of Greater New York united in an organization known as the Woman Suffrage Party, which after the first nine months of its existence reported an enrollment of 20,000 members. The National Association held its annual meeting at Washington in April and was addressed by President Taft who said he feared that if the franchise were granted the intelligent classes of women would not avail themselves of it. This was the first time the body was addressed by a President of the United States. A monster petition with 500,000 signatures was at this time presented to Congress for the reference of the suffrage question to popular vote. The judiciary committee to which it was submitted voted against submitting a suffrage bill.

**GREAT BRITAIN.** On June 14, a bill supported by the Conciliation Committee was introduced in Parliament by Mr. Shackleton. It was designed "to extend the parliamentary suffrage to women occupiers," including "every woman possessed of a household qualification or of a £10 occupation within the meaning of the Representatives of the Peoples act (1884)" and including married women provided "the husband and wife shall not both be qualified in respect of the same property." It was supported by Mr. Balfour and opposed by Mr. Austin Chamberlain of the Opposition. On the government side Mr. Lloyd-George opposed it. It was shelved for the session by commitment to a committee of the whole. On November 22, however, Mr. Asquith promised that in the next parliament his party, if in power, would give facilities for a woman suffrage measure, if it were so framed as to admit of amendment.

**OTHER FOREIGN COUNTRIES.** In Norway the bill for universal municipal suffrage (see *NORWAY, History*) passed the Parliament and on June 27 received the Royal assent. In Canada, the city of Vancouver extended the municipal suffrage to married women. It had already been possessed by spinsters and widows. The Wurtemberg Diet gave women the right to vote for members of the Chamber of Agriculture and made them eligible to membership. Bosnia bestowed the suffrage on women owning a certain

amount of land or personal property. In Hungary a Hungarian Men's League was formed to promote the cause of woman suffrage. In Australia the Senate of the Commonwealth adopted a resolution declaring that the extension of suffrage to women for States and Commonwealth Parliaments on the same terms as to men "has had the most beneficial results." Among these it mentions "more orderly conduct of elections," and "greater prominence given to legislation affecting women and children." It pronounces the woman voters as "far seeing and discriminating as men" and it concludes with the following recommendations: "Because the reform has brought nothing but good, though disaster was freely prophesied, we respectfully urge that all nations enjoying representative government would be well advised in granting votes to women."

**WOMEN IN INDUSTRY. ILLINOIS TEN-HOUR LAW.** The most notable event of the year in the United States bearing upon the status of women in industry was the decision of the Supreme Court of Illinois on April 21, upholding the law of 1909 limiting the employment of women and girls in mechanical establishments, factories and laundries to ten hours in any one day. This decision grew out of an appeal on an injunction which had been granted to W. C. Richie and Company, a firm of paper-box manufacturers, restraining the State factory inspector from enforcing the law. On February 10, the court heard arguments. The State had secured as special counsellor Mr. Louis R. Brandeis of Boston, who, with the assistance of Miss Josephine Goldmark of the National Consumers' League, prepared a notable brief of more than six hundred pages. The argument against the constitutionality was based primarily on the ground that the law violated the provision that "no person shall be deprived of life, liberty or property without due process of law." On this point the court held that the property rights of the citizen are enjoyed subject to the reasonable exercise of the police power of the State. The express purpose of this law "to safeguard the health of such employes" was declared by the court a proper exercise of the police power. To the argument that the law was class legislation the court held that, since the pace in mechanical establishments, factories and laundries is set by machinery, the legislature had not created a special class, but had merely defined the limits of an already existing class clearly different from mercantile establishments, hotels, and restaurants.

The brief for the State laid great stress on the physical differences between women and men and the human values at stake. The importance of family responsibilities, of household cares and of future motherhood was clearly developed. Emphasis was laid on the toxin of fatigue as worked out by recent scientific investigators. The recent development of protective legislation for women was traced; the opinions of the Supreme Court of the United States in the Oregon ten-hour case were cited; and the reasonableness of the Illinois statute as essential to the preservation of liberty rather than an interference with the right of contract was pointed out. The opinion which was written by Justice Hand, after declaring that the limitations of the strength of women and their capacity to endure trying conditions of labor are well known, declared that "What is known to all men and

what we know as men we can not profess to be ignorant of as judges." The opinion, therefore, concluded that "it would seem obvious that legislation which limits the number of hours which women shall be permitted to work to ten hours in a single day in such employments as are carried on in mechanical establishments, factories and laundries, would tend to preserve the health of women and insure the production of vigorous offspring by them and would directly conduce to the health, morals and general welfare of the public, and that such legislation would fall clearly within the police power of the State." This decision, in connection with that of the Supreme Court of the United States upholding the Oregon ten-hour law, clearly establishes the right of a State to use its police power in restricting the freedom of contract of adult women. It was estimated that 30,000 women and girls would secure a reduction in hours, and that many others would be relieved of overtime in rush periods as a result of this decision.

**NEW YORK LAW AND REPORT ON TEXTILE INDUSTRY.** Vigorous efforts were made for a time to amend the New York law so as to permit the employment of women and girls over sixteen in canneries and fruit preserving establishments, between June 15 and October 15, without other restrictions as to hours than that they should not average more than ten hours per day for the season. The bill was withdrawn because of the public opposition aroused by it. In the summer a report authorized by Congress in 1907 was published by the Department of Commerce and Labor dealing with the cotton textile industry. It covered 198 mills employing 81,355 persons, located in four northern States, Maine, New Hampshire, Rhode Island, and Massachusetts; and six Southern States, Alabama, Mississippi, Georgia, Virginia, North and South Carolina. It covered about one-fifth of the industry, giving detailed statistics of men, women and children employed. Its interest is mainly historical because the data were gathered in 1907-8 before much of the advanced legislation dealing with the employment of women and children.

**TELEPHONE EMPLOYEES.** The employment of girls in telephone exchanges was the subject of investigation by a Canadian Commission, by the Wisconsin Railroad Commission, and by the United States Bureau of Labor. The latter included twenty-seven telephone companies in twenty-six States, detailed data being obtained for about forty thousand employes. Of these, 17,210 were female operators working at switchboards. While exchanges were found to be well-housed as a rule, the most frequent complaint of the operators was the lack of elevator service. The report showed that the companies imposed fairly high educational and physical requirements on applicants. Thus, out of 6152 girls applying, 544 were rejected as too small, 436 as too young, 519 as not well enough educated. Girls under five feet are not able to reach to the top of the switchboard or at a sufficient distance sideways. Some city exchanges endeavor to secure high school girls only. The report gives a minute study of the character and the severity of the work. As to salaries, 16,258 women operators of the Bell Companies received an average monthly pay of \$30.91. The salaries in small towns, however, averaged only \$18.21, while in New York City the average was

\$36.96. The average length of service was shown to be about three years.

**BIBLIOGRAPHY.** A number of notable publications dealing with wage-earning women were published during the year. *Women and the Trades*, by Elizabeth B. Butler, is one of the Russell Sage Foundation Publications dealing with the *Pittsburg Survey*. It gives an account of an intensive study into the work of wage-earning women in Pittsburg. *Women in Industry*, by Edith Abbot, Ph. D., Associate Director of the Chicago School of Civics and Philanthropy, is perhaps the most exhaustive study yet made of the scope of industrial employment of women in the United States. Tracing the history of such from colonial times the author shows that the self-supporting woman antedates the factory era. The women workers in the cotton, boot and shoe, cigar, printing and other industries are treated historically and statistically. The efficiency and wages of women are studied; and emphasis is laid upon laws protecting them from exploitation and on the value of an informed public opinion in preserving the social value of women. *Wage-Earning Women*, by Annie M. MacLean, Ph. D., is one of the *Citizens' Library Series*. It is the result of a group of investigations made in various parts of the country by a staff of twenty-nine college and university women. About four hundred establishments employing 135,000 women in more than a score of cities were investigated.

**FRANCE.** The question of dress-making and home employment of women was given considerable attention during the year. By a decree of the Minister of Labor, in effect June 30, night work by seamstresses, as well as other women workers, was prohibited. This was made necessary by the extraordinary rush due to the American season. In many dress-making establishments women were compelled to work all night during the height of the season, and at other times frequently until ten or eleven o'clock at night. The problem of protecting women working at home on sewing, dress-making, millinery, artificial flowers and kindred employments was receiving the attention of legislators at the close of the year. Among the suggestions that had been made for the solution of this difficult problem was the establishment of a minimum wage.

**WOMEN'S CLUBS, GENERAL FEDERATION OF.** An organization founded in 1892. It is composed of individual clubs under State or Territorial federation and there are affiliated organizations with large membership lists. The number of women's clubs in the United States affiliated with the General Federation is about 4500 and the membership is about 500,000. The Tenth Biennial Convention of the Federation met in Cincinnati, May 11-18, 1910. Among the special subjects considered were "Conservation and Public Health," "Education for Girls," "Equal Suffrage," "Civic Betterment," "The Theatre and the People" and others. The President of the Federation in 1910-12 is Mrs. Philip N. Moore; First Vice-President, Mrs. Josiah E. Cole; Second Vice-President, Mrs. John Dickinson Sherman; Recording Secretaries, Mrs. Henry H. Dawson and Mrs. George O. Welch; Corresponding Secretary, Mrs. Frank M. Shiek; Treasurer, Mrs. John Threadgill, and Auditor, Mrs. L. L. Blankenburg.

**WOMEN'S COLLEGES.** See UNIVERSITIES AND COLLEGES.

**WOOD, PRESERVING.** See CHEMISTRY.

**WOOD, WALTER.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**WOOD, W. C. H.** See LITERATURE, ENGLISH AND AMERICAN, *History*.

**WOODBERRY, G. E.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**WOOD-JONES, F.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**WORKMAN, Mrs. F. B.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**WORKMAN, W. H.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**WORKMENS' COMPENSATION.** Throughout western nations compensation for industrial accidents according to some legally established schedules without resort to litigation has tended to displace the traditional form of employers' liability. The laws of the United States have yielded more slowly to this movement than those of England or Germany; consequently, although emphasis is clearly shifting, this subject is treated under EMPLOYERS' LIABILITY.

**WORKMENS' COMPENSATION ACT.** See GREAT BRITAIN, *History*.

**WRESTLING.** The principal wrestling event of 1910 in professional circles was the match between Zbyszko and Gotch, the heavyweight champion of the world. Gotch was the winner in two straight falls, the first taking 6½ seconds and the second 27 minutes, 36 seconds. Previous to this contest Zbyszko had defeated several of the most prominent wrestlers on both sides of the Atlantic. The national championships of the Amateur Athletic Union resulted as follows: 105 pound, George Taylor of the National Turn Verein, Newark; 115-pound, John Hein of the Boys' Club, New York; 125-pound, Max Himmelboch, of the Young Men's Hebrew Association, Detroit; 135-pound, G. S. Kennedy of the Lincoln Turn Verein, Chicago; 135-pound, Carl Johnson of the Swedish American A. C., Brooklyn; 158-pound, Frederick Narganes of the New York A. C.; heavyweight, Frank Motis of Chicago.

In the intercollegiate bouts, the Cornell team won with a total of 11 points. Princeton scored 7 points and Pennsylvania and Columbia each scored 5. The individual winners were: 115-pound, Johnson of Cornell; 125-pound, Ward of Princeton; 135-pound, Stewart of Pennsylvania; 145-pound, Peake of Cornell; 158-pound, Nicholls of Cornell; 175-pound, Ganett of Princeton; heavyweight, Saunders of Cornell.

**WRIGHT, EDMUND.** An English mathematician, died February 21, 1910. He was born in England and graduated from Cambridge University, being senior wrangler in 1900, and Smith's prizeman in 1902. He was for seven years a fellow of Trinity College, Cambridge. In 1903 he was called to Bryn Mawr College as associate professor of mathematics. He retained this position until the time of his death. He was the author of numerous papers in the field of higher mathematics. In 1908 his treatise on *Invariants of Quadratic Differential Forms* was published by the Cambridge University Press.

**WRIGHT, E. H.** See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

**WRIGHT, HAROLD BELL.** See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

**WRIGHT, I. A.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**WRIGHT AEROPLANE.** See AERO-NAUTICS.

**WÜLKER, RICHARD PAUL.** A German philologist, died February, 1910. He was born at Frankfort-on-the-Main, 1845, and was educated at the universities of Berlin, Leipzig, and Marburg. In 1875 he was appointed professor of English language and literature at the University of Leipzig. His published writings include the following: *Das Evangelium Nikodemus* (1872); *Altenglisches Lesebuch* (1874-80); *Kleinere angelsächsische Poesie*, re-edited (1881-99); *Grundriss zur Geschichte der angelsächsischen Literatur* (1885); *Codex Vercellensis* (1894); *Geschichte der englischen Literatur* (1896); and *Bibliothek der angelsächsischen Prosa* (1899).

**WURTZ, HENRY.** An American chemist, died November 10, 1910. He was born in 1827 and graduated from Princeton University and the Massachusetts Institute of Technology. At the outbreak of the Civil War he was chemical examiner in the United States Patent Office and professor of chemistry in the National Medical College. He was the author of numerous scientific treatises and was the first scientist to prove the existence of gold in sea water. He discovered several minerals, one of which was named for him. For many years he was editor of the *New York Gaslight Journal*.

**WYMAN, ISAAC O.** An American philanthropist, died May 16, 1910. He was born in 1827 in Salem, Mass. He made a large fortune in real estate and at the time of his death was said to have owned real estate in every State and Territory in the country. He was the owner of nearly two-thirds of the land in Marblehead Neck. One of his early investments was in the Suez Canal. He graduated from Princeton University and to this institution he left his entire estate, amounting to about \$3,000,000.

**WYOMING.** One of the Mountain Division of the United States. Its area is 97,714 square miles. Its capital is Cheyenne.

**POPULATION.** The population of the State in 1910, according to the Thirteenth Census, was 145,965 as compared with 92,531 in 1900 and 62,555 in 1890. The increase in the decade 1900 to 1910 was 57.7 per cent. The State ranks forty-ninth in point of population, the same relative rank which it held in 1900. The population of the larger cities and towns will be found in the tables in the articles UNITED STATES CENSUS.

**MINERAL PRODUCTION.** The State is important as a producer of coal. This amounted in 1909 to 6,376,909 short tons as compared with 5,489,902 short tons in 1908. The increase in production in 1909 was general throughout the State. The United States Geological Survey estimates an increased production in 1910. There was produced in 1909 gold to the value of \$3990 and 1363 fine ounces of silver. The State produces copper, but the production of 1909 showed a decrease from that of 1908 which in the former year was 433,672 pounds, as compared with 2,416,197 pounds in 1908. Among other mineral products, although in relatively unimportant quantities, are clay products, gypsum, lime, sand and precious stones.

**AGRICULTURE.** The acreage, production and value of leading crops for 1909 and 1910 are given in the following table:

	Acreage	Prod. bu.	Value
Corn, 1910.....	6,000	60,000	\$ 40,000
1909.....	5,000	140,000	109,000
Winter wheat, 1910...	42,000	1,050,000	998,000
1909...	25,000	812,000	804,000
Spring wheat, 1910...	65,000	1,625,000	1,544,000
1909...	55,000	1,485,000	1,470,000
Oats, 1910.....	130,000	4,160,000	2,080,000
1909.....	100,000	3,500,000	1,750,000
Barley, 1910.....	4,000	120,000	80,000
1909.....	4,000	124,000	92,000
Rye, 1910.....	1,000	18,000	15,000
1909.....	1,000	26,000	23,000
Potatoes, 1910.....	11,000	1,100,000	902,000
1909.....	10,000	1,600,000	1,008,000
Hay, 1910.....	300,000	720,000	9,000,000
1909.....	277,000	665,000	5,918,000

**EDUCATION.** The number of children of school age in the State on April 30, 1910, was 32,334. The enrollment in the schools was 24,584. In the past two years there has been a great increase in the attendance at the schools, in large measure due to an excellent truancy law passed by the legislature. The compulsory education law was amended by the legislature of 1909 and the results of its operation have been excellent. The average monthly compensation of male teachers in the State was \$75.57 and of female teachers, \$56.84.

**FINANCE.** The report of the State treasurer for the biennial period 1909-10 showed a cash balance in the treasury on October 1, 1908, of \$353,419. The total receipts during the period were \$1,947,089 and the disbursements were \$1,800,825, leaving cash on hand September 30, 1910, of \$327,228. The bonded debt of the State on September 30, 1910 amounted to \$180,000.

**CHARITIES AND CORRECTIONS.** The charitable and correctional institutions under the care of the State, with the disbursements for their support during the biennial period 1909-10, were as follows: Hospital for the Female Insane, \$48,997; Hospital for the Insane, \$1200; Penitentiary at Rawlins, \$919; State Hospital, \$58,551; Rock Springs Hospital, \$378; Home for Feeble-minded and Epileptics, \$16,111; Sheridan Hospital, \$38,120; Miners' Hospital, \$1207; Penitentiary in Albany county, \$2400; Wyoming Soldiers and Sailors' Home, \$17,804.

#### POLITICS AND GOVERNMENT

There was no session of the State legislature in 1910 as the sessions are biennial and the last was held in 1909.

**CONVENTIONS AND ELECTIONS.** The feature of the election of 1910 in Wyoming was the attempt made to wrest the control of the State from the regular Republicans. In this attempt the Democrats combined with the insurgent Republican wing and united on a candidate for governor, nominating on September 21 Judge Joseph M. Carey the leading insurgent Republican in the State. The platform which was adopted was constructed to meet the approval of Judge Carey and contained nothing in condemnation of the national administration, except some criticism of the Payne-Aldrich tariff law. The Republicans had previously held their convention on September 15 and had defeated the insurgents by nominating for governor W. E. Mullin, a regular. The platform

endorsed President Taft's administration, with special commendation for the attitude of the President on the question of conservation. The insurgents did not hold a convention but supported the ticket nominated by the Democrats. The platform adopted by the Democratic insurgent combination favored the initiative and referendum, the Oregon primary laws, publicity of corporation affairs, a commission form of government for municipalities, eight hour labor laws, State conservation as against national conservation, and other laws for State government.

In the election held on November 8, the Democratic insurgent combination succeeded in electing its candidate for governor, Judge Carey, by a plurality of 5851. The total vote was, Carey, 21,086, Mullin, 15,235, and the Socialist candidate received 1605 votes. The Republican candidate for Representative to Congress, Frank W. Mondell, was re-elected. The State legislature remains Republican by 13 on joint ballot, thus insuring the re-election of Senator Clarke, whose term expires in 1911.

The disastrous winter of 1909, followed by a dry season, caused considerable retrenchment in the livestock industry, herds and flocks being marketed early, thus reducing the demands upon the range.

The Chicago, Burlington and Quincy Railway which is building a Seattle-Galveston line through Wyoming, made rapid progress and will have its road in operation by January 1, 1912. An important link is between Cheyenne and Wellington, Colorado, thirty-five miles long, which is being rapidly rushed to completion.

The influx of farmers, both in irrigated and unirrigated sections, continued throughout the year. Congressman Mondell's surface rights law applying to classified coal lands, opened up a large acreage to settlement.

The Pathfinder and Shoshone national irrigation projects made marked progress (see RECLAMATION) and Asmus Boysen completed a great dam for power purposes near Shoshone, which will be one of the largest private power enterprises in the country.

**STATE OFFICERS.** Governor, J. M. Carey; Secretary of State, F. L. Houx, Treasurer, J. L. Baird; Auditor, R. B. Forsythe; Adjutant-General, \_\_\_\_\_; Attorney-General, \_\_\_\_\_; Supt of Education, Rose Bird—all Democrats except Baird and Forsythe.

**SUPREME COURT.** Chief Justice, Chas. M. Potter; Associate Justices, Cyrus Beard, Richard H. Scott; Clerk, W. H. Kelly—all Republicans.

**STATE LEGISLATURE, 1911.** Senate: Republicans, 19; Democrats, 8; Republican majority, 11. House: Republicans, 29; Democrats, 27; Republican majority, 2, joint ballot: Republicans, 48; Democrats, 35; Republican majority, 13.

**XENON.** See ATOMIC WEIGHTS.

#### YACHTING AND MOTOR-BOATING.

The yachting season of 1910 was the most notable in the history of the sport, a larger number of boats being built and more races contested than ever before. Seven ocean races were held, four for power boats and three for sailing craft. The longest was the Philadelphia-Havana event of 1200 miles in which

four boats were entered. The *Bernego*, a 50-foot power boat owned by S. W. Granbery, was the winner, covering the distance in 150 hours 19 minutes. An average speed of 7.97 nautical miles per hour was maintained. The Bermuda power boat race was won by the *Eronel II*, belonging to F. D. Giles, Jr. The sailing race to Bermuda was won by Harold Vanderbilt's schooner *Vagrant*.

American boats were the victors in both international races held during the year. The first was the sonder-klasse event between Spanish and American boats held off Marblehead for the cup presented by President Taft. The *Harpoon*, owned by Charles Francis Adams, 2d, was the winner. The second international race was between American and English boats for the British International Trophy. The event was won by F. K. Burnham's *Dixie II*.

The Astor Cup for schooners was captured by F. F. Brewster's *Elmina*. The same boat while on the cruise of the New York Yacht Club was the winner of the commodore's, vice-commodore's and rear commodore's cups during the runs from port to port. Cornelius Vanderbilt's *Aurora* of the 65-foot class won the Astor Cup for sloops and the King's Cup. The *Aurora* also captured the Bennett Cup and during the racing season finished first in thirteen races, second in thirteen and third in eight.

**YALE UNIVERSITY.** An institution of higher learning at New Haven, Conn., founded in 1701. The total attendance of the university in the year 1910-11 was 3287. The instructors numbered 406. Among the important acquisitions to the faculty during the collegiate year were the following: Ernest Carroll Moore, for many years Superintendent of Schools in Los Angeles, Cal., and previously Assistant Professor of Pedagogy at the University of California became Professor of Education; Albert Tobias Clay, Ph. D., took up his work as Professor of Assyrian and Babylonian Literature on the Laffan Foundation, established by J. Pierpont Morgan. Dr. Clay was previously at the University of Pennsylvania. Charles McLean Andrews, formerly of Johns Hopkins University, assumed the duties of Professor of American History on the recently established Farnam Foundation; Professor Allan Johnson, formerly of Bowdoin College, became Larned Professor of American History to succeed Professor Charles S. Smith, resigned; Professor Bertram Boltwood became Professor of Radioactivity. The total gifts and bequests to the university during the year amounted to \$2,398,291. For mention of the most notable gifts see the article GIFTS AND BEQUESTS. The investments of the university amounted to \$12,101,993 and the annual income to nearly \$2,000,000. The president is Arthur T. Hadley.

**YELLOW FEVER.** Professor Boyce, concluding an investigation of yellow fever in Jamaica, reported that the old-time scourge of the West Indies has practically disappeared. Since 1850, when water pipes were introduced in nearly all the principal towns, thus doing away with the necessity for wells, vats and barrels, the breeding places of the *stegomyia* were greatly reduced in numbers and with them the number of cases of yellow fever. Boyce states that wherever a considerable reduction in the number of the *stegomyia* mosquito is brought about, yellow fever ceases to be endemic in that place; in short, a certain

excess of this mosquito appears to be necessary for the maintenance of continuous infection or endemicity. Short of that number, the endemic character disappears, but if a case of yellow fever should be imported from some distant focal centre, as for example Central America, then a smaller or larger outbreak will occur, limited in extent by the number of *stegomyia* existing in that particular district. These outbreaks, however, are becoming less frequent and smaller. There were no cases of yellow fever in the United States, the Isthmus of Panama (except 2 imported cases) or the Philippines, during 1910. See VITAL STATISTICS.

**YOUNG, G. F.** See LITERATURE, ENGLISH AND AMERICAN, *Biography*.

**YOUNGHUSBAND, E.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**YOUNGHUSBAND, Sir FRANCIS.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**YOUNGMAN, A.** See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

**YOUNG MEN'S CHRISTIAN ASSOCIATION.** An interdenominational association for carrying on an all-round welfare work for young men on a Christian basis. The association originated in London in 1844. It now exists in every continent and in nearly every country of the world. In America it is found in 10 countries; in Europe in 22; in Asia 11; in Africa 4; in Australasia 3. The total membership of the association in 1910 was 889,850. The associations occupied 1264 buildings valued at \$64,202,975, and there were 1521 paid general secretaries. In North America there were 2017 associations with 496,591 members and 696 buildings, valued at \$50,919,915. There were 2927 employed officials. In the association educational classes there were 52,277 students; in physical work, 271,506; in Bible classes 94,789. By departments the classifications were as follows: Members in the railroad associations 83,881; in student associations 58,923; in boys' departments 91,756. In city associations there were 68,666 men in industrial occupations. For current expenses there were expended in 1910 for local work, \$7,081,043; State and provincial work, \$463,504; international committee—home work, \$279,630; foreign missionary work, \$193,082. There were 76 international employed secretaries in the home field, and 86 in the foreign field. The North American International Committee is composed of 63 members: Lucien C. Warner, chairman; F. B. Schenck, treasurer; and R. C. Morse, general secretary.

**YOUNG WOMEN'S CHRISTIAN ASSOCIATIONS OF THE UNITED STATES OF AMERICA,** NATIONAL BOARD OF. Object: "To unite in one body the Young Women's Christian Associations of the United States; to establish, develop and unify such associations; to advance the physical, social, intellectual, moral and spiritual interests of young women; to participate in the work of the World's Young Women's Christian Association." One hundred eighty-nine City Associations, 639 Student and nine Industrial and Rural Associations are members of the national organization with a total membership of 216,556 young women. There are 15 Territorial and State organizations. Each year 10 summer conferences are held

to train volunteer workers in Bible study and Association work. Work has recently been instituted among the Indians, immigrants, colored students and in professional and private schools. The National Training School to prepare young women for executive positions is located at 3 Grammercy Park, New York. The official organ is *The Association Monthly*. Miss Grace H. Dodge, President; Mrs. Samuel J. Broadwell, Treasurer; Mrs. W. Rossiter, Secretary; Miss Mabel Cratty, General Secretary.

**YTTERBIUM (NEOYTTERBIUM).** See ATOMIC WEIGHTS.

**YTTRIUM.** See ATOMIC WEIGHTS.

**YU-LANG.** See CHINA.

**ZAMACOIS, M.** See FRENCH LITERATURE.

**ZANGWILL, I.** See LITERATURE, ENGLISH AND AMERICAN, *Travel and Description*.

**ZANZIBAR.** A British protectorate on the eastern coast of Africa, embracing the islands of Zanzibar (640 square miles), Pemba (340), Lamu (56), Manda, Patta, and Siwa; a ten-mile coast-line from Wanza to Kipini; and the port of Kismayu, with a ten-mile radius. A recent estimate by British officials gives the population as follows: Zanzibar (island), 195,000 (Zanzibar, the capital city, 70,000); Pemba, 60,000 (about); total, about 255,000, of which about 10,000 are Arabs and 20,000 East Indians. Whites, about 250. Chake-Chake is the chief city of Pemba. There are government and mission schools. There are no mines. Cloves, cocoanuts, chillies, and betel nuts are grown; the export of cloves constitutes about 85 per cent. of the world's supply. Imports (1909), £994,368 (1908, £969,841); exports, £1,001,364 (£977,628). In 1908 the export of cloves and clove stems amounted to £264,960; copra, £119,940; ivory, £54,469. Trade by countries (1909): British India, £389,492 imports and £198,006 exports; Great Britain, £144,521 and £89,900; German East Africa, £128,819 and £106,673; United States, £45,778 imports; Germany, £40,984 imports; France, £128,267 exports (returns incomplete). Total tonnage entered (1908), 445,350, exclusive of coasting and dhow traffic which is very large, extending to Bombay, Arabia, the Comoro Islands and Madagascar. A light railway (American) extends from Zanzibar to Bububu (about six miles). Actual revenue and expenditure for 1909, £204,000 and £189,000 respectively; 1910 estimates, £185,000 and £197,000. The sultanate has an invested fund of £500,000, and a public funded debt of £78,687. Reigning sultan, Seyid Ali bin Hamoud bin Mahomed bin Said (born June 7, 1884; succeeded, July 20, 1902). British agent and consul-general, E. A. W. Clarke. The Zanzibar domains on the mainland are administered through the governor of the East African Protectorate.

**ZEPPELIN AIR SHIPS.** See AERONAUTICS.

**ZIEGLER, CLARA.** A German actress, died in January, 1910. She was born in Munich in 1844. After making her debut at Bamberg in 1862, she was seen successively at Ulm, Munich and Leipzig. She scored great triumphs, especially as Brunhild, Isabella, Maid of Orleans and Elisabeth. From 1868 to 1874 she was a member of the royal theatre in Munich and in 1886 married her former instructor, Adolf Christen. She appeared in engagements on nearly all the principal stages of Germany,

Holland and Russia. Her chief rôles were in tragedy, but she also impersonated successfully characters in high class comedy. She was the author of several comedies, which were produced with considerable success.

**ZINC.** The production of zinc in the United States in 1910, according to the *Engineering and Mining Journal*, was the largest on record. The total production of spelter or crude zinc was estimated at 278,380 tons as compared with an output of 266,462 tons in 1909. Of the production in 1910 112,533 tons came from the Kansas-Missouri mines and 80,834 tons from the Illinois mines.

The imports of zinc ore in 1910 were about 85,000 tons compared with 118,269 tons in 1909. The exports were about 19,000 tons as compared with 12,456 in 1909. There were about 30 zinc smelters in the United States actively producing in 1910, with 224 furnaces and 95,211 retorts.

The prices of zinc and zinc ore remained about the same in 1910 as in the year previous in spite of the higher tariff on zinc ore.

The failure of natural gas in Kansas is likely to result in a shortage of smelting capacity in that State. Four works at Iola were abandoned during the year. See **ATOMIC WEIGHTS** and **MINERAL PRODUCTION**.

**ZIRCONIUM.** See **ATOMIC WEIGHTS**.

**ZOOLOGICAL SOCIETIES.** The 8th International Zoological Congress met at Gratz, Austria, in August, under the presidency of Professor Dr. L. V. Graff. It was announced that the 9th meeting will be held in 1913 at Monaco, with the Prince of Monaco as President. The British Association for the Advancement of Science met in September at Sheffield. The Zoological section was under the presidency of G. C. Bourne, whose address was a plea for the study of morphology now somewhat in disrepute. The American Association met at Minneapolis during the last week in December, with J. Reighard as Vice-President of the Zoological section. The address was by the retiring Vice-President, W. E. Ritter. The Central Branch of the American Society of Zoologists met at the same time and place, with C. E. McClung as President. The Eastern Branch of the Zoological Society met at Ithaca with the American Society of Naturalists, T. H. Montgomery and D. T. MacDougall being the respective presidents. The latter society has for several years limited its discussions to some phase of the evolution problem, the subject for 1910 being the "Pure Line" theory of Johannsen.

**ZOOLOGY.** As was stated in the **YEAR BOOK** for 1908, the latest addition to the apparatus of the zoological laboratory is the centrifuge. Unsegmented eggs, centrifuged for a time, show a stratification into visibly different layers, there being a surprising amount of uniformity in the number of these layers among eggs belonging to very different groups of animals, three being the number which usually appeared. Since other experiments had shown that in many cases visibly distinct substances had entirely different fates in the developing embryo, the removal of one of them from the egg resulting in a loss of some one organ from the body of the larva, it was thought that when these substances, separated by the centrifuge, were displaced in this way, definite abnormalities would follow. Morgan showed, however, in 1910, that although these

three layers separated when the eggs of a mollusk, a nemertean, a rotifer and a fish were centrifuged, perfectly normal embryos nevertheless made their appearance, in all three groups, though the distribution of the material must have been quite different from the untreated egg. Abnormal embryos may appear, but this, according to Morgan, is due rather to the effects of handling the eggs in removing them from the parent, etc. than to the centrifuge, the results of various experiments tending to this conclusion. Morgan's observations on the behavior of the karyokinetic spindle in these experiments indicated that the spindle fibres are more or less permanent organs, and the centrosome is not to be regarded as a "centre of force." While he does not attempt an explanation of the function of the centrosome, he thinks that it is possible to form the clearest conception of the process by regarding the spindle formation as analogous to a crystallization process, the centrosome acting as a crystallization centre.

Conklin, working on the eggs of pond snails, reached conclusions essentially in agreement with those of Morgan. Although there are visibly distinct substances in the eggs of these animals, and although these substances have definite fates in the normal development, their position may be changed by the centrifuge without in any way affecting the character of the resulting embryo. The chief axis of the egg is apparently fixed in all stages, and is not altered by the shifting of egg substances. There is evidence also that the bilaterality of the egg is early marked off, but Conklin decides that neither polarity nor bilaterality is unalterably associated with any of the three visible substances of the egg. His final conclusion is that there must be some sort of a framework which is not affected by the experiment, and which by a sort of regulation restores the original organization as the development progresses. Morgan stated that pressure on an egg having determine type of cleavage, as in *Ciona* and *Nereis*, produces an abnormal embryo much more readily than in the case of the frog or sea urchin, where the cleavage is indeterminate. He concluded that in the former eggs specification appears early, and cleavage planes coincide with areas of specification, thus separating different areas. Pressure, by forcing cleavage planes into new localities, may crowd into one cell, material having different dynamic qualities and therefore abnormalities may result.

That in *Paramœcium* a process of conjugation occurs after a longer or shorter period of reproduction by fission is apparently a well established fact, attested by numerous observations. The usual explanation is that in conjugation the individuals are mutually supplied with some protoplasmic ingredient which has been exhausted from their bodies, and that they will die if this be not supplied. Jennings, in 1910, decided that the conditions which govern conjugation are different in different races of the same species. Some conjugate frequently, while others under the same conditions do so very rarely or not at all. Since in some races, then, conjugation may be repeated at intervals of from five days to a month, while in others it may be deferred for at least three years, Jennings concludes that when it occurs it must have some other explanation

than that it is the result of senile degeneration at the end of a life cycle. Jennings also showed in another paper that some individuals separated when beginning the conjugation process would live and continue the normal divisions, while others after conjugation divided more slowly and showed more abnormalities. This gave further evidence that conjugation is not essentially a rejuvenation process.

Parker working on the reactions to stimulus shown by *Stylatella*, a sponge, showed that while its oscula will close in response to stimulation of various sorts, this movement seems to be merely that of a muscle, and there appears to be nothing that could properly be called a nerve reaction. Phylogenetically, he thinks, muscles developed first, and are the only portion of the neuro-muscular apparatus present in sponges. Later, the development of sense cells gave rise to a condition like that in cœlenterates, while the processes in the higher metazoans are due to the development of an adjuster or central nerve organ.

Hertwig returned during the year to the defense of his old theory that the germ plasma is located in the nucleus of the cell, reaching this conclusion from the equivalence of ovum and sperm nuclei, the precise division of nuclear substance in karyokinesis, and in the reduction processes by which accumulation of nuclear matter is obviated. Newman in *Fundulus* hybrids showed also that the influence of the sperm appears as early and is as important as the ovum in fixing the characters of the embryo.

Kershaw stated that the candle fly, *Pyrops candelaria*, is not as is commonly supposed phosphorescent, but that the snout is rather a food reservoir. The pairing apparently always takes place at night, after a preliminary courtship which is usually somewhat prolonged.

Dendy has reinvestigated the anatomy and development of the pineal eye of *Sphenodon*, and finds that its nerve is not a median structure, but comes from the left side of the brain, indicating that the pineal organs are paired structures. The chief structural sign of degeneration shown by the eye is the great amount of pigment found in it when adult. Owing to the general sluggish habit of the animal, it was difficult to get positive results in experiments on the light perceiving power of this eye, for though it did not respond when a bright light was flashed into the organ, that may not have meant more than that the animal responds very slightly

to stimulation of any sort, and does not necessarily mean that it did not receive the stimulus.

Newman and Patterson found in the nine-banded armadillo, that in as many as 90 per cent. of observed cases there are four embryos contained in a single vesicle. These are always of the same sex, their germ layers are inverted, and their general relation to one another is such that the two investigators can find no other explanation than that they have arisen in all cases from a division of the four cell stage of the egg into its component cells, each of which has given rise to a distinct embryo. The fact that these are all of the same sex indicates that sex is determined at the time of fertilization, and is not due to nutritive conditions surrounding the embryo.

Mayer, as a contribution from the Department of Marine Zoölogy of the Carnegie Institution, published an elaborately illustrated account of the *Medusæ of the World*. This was begun in collaboration with Alexander Agassiz, but continued by Mayer alone. It attempts to give not only a description of all known species of medusæ, but reviews the literature dealing with all the embryological and experimental work which has been done on these animals.

Korschelt and Heider published during the year two more parts of their *Lehrbuch der vergleichenden Entwicklungsgeschichte der wirbellosen Thiere*, the first dealing with germ layer formation, and the second with non-sexual reproduction.

One of the most important books of the year was that on *Ants* by Wheeler. The book is encyclopædic in its treatment, dealing with the group from anatomical, physiological, psychological and systematic standpoints.

An important deep-sea exploring expedition of the year was that of the *Michael Sars*, a vessel owned by the Norwegian government though the expedition was financed by Sir John Murray. The vessel left Plymouth in April, skirting the coasts of Europe and Africa as far as Cape Bogador, then to the Azores, and across the ocean to St. John's, Newfoundland. From here she sailed back to the coast of Ireland and Scotland. Numerous hydrographic records were taken, and much zoölogical collecting done, mainly of the plankton. A summary of the results appeared in *Nature* in November, but complete reports have not yet appeared. See BIOLOGY.

ZUEBLIN, C. See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

THE END

# LIST OF TITLES

## IN THE VOLUMES OF

# The New International Year Book

## For 1907, 1908, and 1909

*[This list is intended merely to facilitate reference to preceding volumes. The separate entries in the present (1910) volume, numbering over 3000, will be found in their alphabetical order in the text.]*

- Abandoned Farms, '09, 1.  
 Abbott, Edward, '08, 1.  
 Abd-el-Azis, Mulai, '07, 1;  
 '08, 1.  
 Abdul Hamid II, '08, 1; '09, 1.  
 Abruzzi, Duke of the, '09, 1.  
 Abyssinia, '07, 1; '08, 1;  
 '09, 1.  
 Académie Française, '07, 2;  
 '08, 2; '09, 2.  
 Academies, The International Association of, '09, 2.  
 Academy, British, '08, 2; '09, 2.  
 Academy of Arts and Letters, '09, 2.  
 Aconcagua, Mount, '09, 3.  
 Actinotherapy, '07, 2; '08, 2.  
 Actions Limitation of, '07, 2.  
 Ade, George, '07, 2.  
 Aden, '07, 2; '08, 2; '09, 3.  
 Adler, Fredrich, '08, 2.  
 Adulteration, '07, 3; '08, 3; '09, 3.  
 Advancement of Science, American Association for the, '07, 3; '08, 3; '09, 58.  
 Advancement of Science, British Association for the, '07, 3; '08, 51; '09, 54.  
 Adventists, '07, 4; '08, 3.  
 Adventists, Seventh Day, '08, 3; '09, 3.  
 Aeronautics, '07, 4; '08, 4; '09, 3.  
 Aeroplanes, '08, 7; '09, 6.  
 Afghanistan, '07, 7; '08, 7.  
 Africa, '07, 8; '08, 8; '09, 7.  
 African Methodist Episcopal Church, '07, 10; '08, 8; '09, 7.  
 African Methodist Episcopal Zion Church, '07, 10; '08, 8; '09, 7.  
 Agassiz, Elizabeth Cabot, '07, 10.  
 Agrarian Movement, '07, 10.  
 Agricultural Education, '07, 10; '08, 8; '09, 7.  
 Agricultural Experiment Stations, '07, 11; '08, 10; '09, 9.  
 Agriculture, '07, 15; '08, 12; '09, 11.  
 Ahmed Mirza, '09, 16.  
 Aiken, William Martin, '08, 16.  
 Ainhum, '07, 20.  
 Airship, '07, 20; '08, 16; '09, 16.  
 Aked, Charles Frederic, '07, 20.  
 Alabama, '07, 20; '08, 16; '09, 16.  
 Alamosite, '09, 19.  
 Alaska, '07, 23; '08, 19; '09, 19.  
 Alaska-Yukon-Pacific Exposition, '07, 26; '08, 21; '09, 21.  
 Albaugh, John W., '09, 21.  
 Albert I, '09, 21.  
 Alberta, '07, 25; '08, 21; '09, 21.  
 Alberti, Peter A., '08, 21.  
 Alcohol, '07, 25; '08, 21; '09, 22.  
 Alcohol, Industrial or Denatured, '07, 26.  
 Alden, William Livingston, '08, 22.  
 Alderman, Edwin Anderson, '07, 26.  
 Aldrich, Nelson Wilmarth, '08, 22; '09, 23.  
 Aldrich, Thomas Bailey, '07, 26.  
 Alexander, John White, '09, 23.  
 Alexandra, Mary Wilhelmina, '07, 27.  
 Alexis, Alexandrovitch, '08, 22.  
 Alfalfa, '07, 27; '08, 22; '09, 23.  
 Alfonso, XIII, '07, 27.  
 Alger, Russell Alexander, '07, 28.  
 Algeria, '07, 28; '08, 23; '09, 23.  
 Alikhanoff, General, '07, 29.  
 Ali-Mirza, Mohammed, '07, 29; '08, 24; '09, 25.  
 Allison, Sir Archibald, '07, 29.  
 Alkaloids, '09, 25.  
 Allen, Alexander Viets Griswold, '08, 24.  
 Allendale, Wentworth Blackett Beaumont, First Baron, '07, 30.  
 Alliance Israelite Universelle, '07, 30.  
 Allison, William Boyd, '07, 30; '08, 24.  
 All Red Route, '08, 25; '09, 25.  
 Alternators, '09, 25.  
 Aluminum, '07, 30; '08, 25.  
 Amador, Manuel, '07, 30; '09, 25.  
 Ambrose Channel, '09, 25.  
 Amer. Associations and Societies, '07, 30; '08, 25; '09, 25.  
 American Breeders' Association, '07, 30.  
 American Canal, '09, 25.  
 Amherst College, '07, 30; '08, 25; '09, 25.  
 Amicis, Edmondo de, '08, 25.  
 Ammonal, '09, 25.  
 Amundsen, Roald, '07, 30.  
 Anæsthesia, '07, 30; '08, 26; '09, 25.  
 Anaphylaxis, '08, 26.  
 Anarchy, '08, 26.  
 Andrassy, Julius, '07, 31.  
 Andrew and Philip, Brotherhood of, '07, 31; '08, 27.  
 Andrews, Edward Gayer, '07, 21.  
 Angell, George Thorndike, '09, 26.  
 Anglican Church, '07, 31; '08, 27; '09, 26.  
 Angola, '07, 31; '08, 27; '09, 26.  
 Animal Diseases, '07, 32; '08, 23; '09, 26.  
 Ankeny, Levi, '07, 32; '08, 28.  
 Ankylostomiasis, '07, 32; '09, 26.  
 Annam, '07, 32; '08, 28; '09, 26.  
 Anniversaries, '09, 27.  
 Antarctic Exploration, '07, 33; '08, 28; '09, 27.  
 Anthocyanin, '09, 27.  
 Anthony, William Arnold, '08, 28.  
 Anthrax, '07, 33.  
 Anthropological Association, '07, 33; '08, 28.  
 Anthropology, '07, 33; '08, 28; '09, 27.  
 Antigua, '08, 32; '09, 32.  
 Antimony, '07, 38; '08, 32; '09, 32.  
 Antiquarian Society, '07, 38; '08, 32; '09, 32.  
 Anti-Saloon League of America, '07, 38; '08, 33; '09, 32.  
 Antitoxin, '07, 38; '08, 33; '09, 33.  
 Anti-Vivisection, '08, 33; '09, 33.  
 Aoki, Siuzo, Marquis, '07, 39.  
 Aqueducts, '07, 39; '08, 33; '09, 33.  
 Arabia, '07, 39.  
 Arbitration and Conciliation, '08, 34; '09, 35.  
 Arbitration, International, '07, 39; '08, 35; '09, 35.  
 Arbitration, Labor, '07, 42; '08, 35; '09, 38.  
 Archæological Institute of America, '07, 42; '08, 35; '09, 38.  
 Archæology, '07, 42; '08, 36; '09, 39.  
 Archæology, American, '07, 46; '08, 40; '09, 43.  
 Archbold, John Dustin, '08, 40.  
 Archery, '08, 40.  
 Architecture, '07, 46; '08, 40; '09, 43.  
 Arc Lamps, '08, 44.  
 Arcstowski, H., '07, 49.  
 Arctic Exploration, '07, 49; '09, 46.  
 Arctic and Antarctic Exploration, '08, 44.  
 Argentina, '07, 51; '08, 44; '09, 46.  
 Argentina Ant, '08, 47.  
 Arid Lands, '07, 54; '08, 47.  
 Arizona, '07, 54; '08, 47; '09, 50.  
 Arkansas, '07, 56; '08, 48; '09, 51.  
 Armenia, '07, 58.  
 Armies, '07, 58; '08, 50; '09, 52.

Page numbers are given in heavy face type.

Armijo, Don Antonio  
Aguilar y Correa, '08, 50.  
Armor Plate, '07, 58.  
Armstrong, Frank C., '09, 52.  
Armstrong, Sir George  
Carlyon Hughes, '07, 58.  
Arnold-Forster, Hugh Oak-  
ley, '09, 52.  
Arsenic, '07, 58; '08, 50; '09, 53.  
Artillery, '07, 58; '08, 50; '09, 53.  
Asbestos, '07, 58; '08, 50.  
Ashanti, '07, 58; '08, 50; '09, 53.  
Ashokan Reservoir, '09, 53.  
Asiatic Association, '07, 58.  
Asphaltum, '07, 58; '08, 50.  
Asquith, Herbert Henry, '07, 58; '08, 50.  
Assembly, General, '07, 58; '08, 50.  
Associated Press, '07, 59; '08, 51.  
Associate Reformed Synod of the South, '07, 59; '08, 51.  
Association of American Agricultural Colleges and Experiment Stations, '07, 59; '08, 51; '09, 54.  
Association of American Universities, '08, 51; '09, 54.  
Assur, Excavations in, '08, 51; '09, 54.  
Asteroids, '08, 51.  
Astor Library, '07, 59; '08, 51; '09, 54.  
Astronomy, '07, 59; '08, 51; '09, 54.  
Athens, Excavations in, '08, 55.  
Athletics, '07, 62; '08, 55; '09, 58.  
Athreptic, '09, 58.  
Atom, Atomic Theory, '07, 62; '08, 56.  
Atomic Weights, '07, 62; '08, 56; '09, 58.  
Atwater, Wm. Olin, '07, 62.  
Augur, Jacob Arnold, '09, 58.  
Aurora Borealis, '07, 63.  
Australia, '07, 63; '08, 56; '09, 58.  
Austria-Hungary, '07, 71; '08, 62; '09, 65.  
Automobiles, '07, 77; '08, 68; '09, 71.  
Autoserotherapy, '07, 79; '09, 73.  
Aviation, '08, 71; '09, 73.  
Ayrton, William Edward, '08, 71.  
Babcock, John Breckin-  
ridge, '09, 73.  
Babylon, Excavations in, '08, 71; '09, 73.  
Backus, Truman Jay, '08, 71.  
Bacon, Augustus Octavius, '07, 79.  
Bacon, Leonard Woolsey, '07, 80.  
Bacon, Robert, '09, 73.  
Bagdad Railway, '07, 80; '08, 71.  
Bahamas, '07, 80; '08, 71; '09, 73.  
Bailey, Joseph Weldon, '07, 80.  
Bailey, Liberty Hyde, '08, 71.  
Bain, Robert Nisbet, '09, 73.  
Bakelite, '09, 73.  
Baker, Sir Benjamin, '07, 81.  
Balch, George Beall, '08, 72.  
Baldwin, Elias Jackson, '09, 73.  
Balfour, Arthur James, '07, 81.  
Balkan Question, '08, 72; '09, 73.  
Balkan Peninsula, '07, 80.

Ballinger, Richard Achilles, '09, 76.  
Ballons Sondes, '07, 81.  
Balloon, '07, 81; '08, 76; '09, 76.  
Ballot Reform, '09, 76.  
Bank, Central, '09, 76.  
Bankhead, John Hollis, '07, 81.  
Banks and Banking, '07, 81; '08, 76; '09, 76.  
Banks, Sir John, '08, 76.  
Baptists, '07, 84; '08, 78; '09, 79.  
Baptists, Free, '07, 84; '08, 79; '09, 79.  
Baptist Young Peoples' Union of America, '07, 85; '08, 79; '09, 80.  
Bar Association, American, '07, 85; '08, 79; '09, 80.  
Barbados, '07, 86; '08, 80; '09, 80.  
Barber, Amzi Lorenzo, '09, 80.  
Barbier de Meynard, Charles Adrien Casimir, '08, 80.  
Barclay, Charles James, '09, 80.  
Barley, '07, 86; '08, 80; '09, 81.  
Barotseland, '07, 87; '08, 80; '09, 81.  
Barrett, John, '07, 87.  
Barrows, Samuel June, '09, 81.  
Barth, Theodor, '09, 81.  
Bartlett, Franklin, '09, 82.  
Barytes, '07, 87; '08, 81.  
Baseball, '07, 87; '08, 81; '09, 82.  
Baskerville, H. C., '09, 83.  
Basket Ball, '07, 88; '08, 82; '09, 83.  
Basserman, Heinrich, '09, 83.  
Basutoland, '07, 88; '08, 82; '09, 83.  
Batcheller, George Sher-  
man, '08, 82.  
Bates, Alfred Elliott, '09, 84.  
Bates, Joshua H., '08, 82.  
Baths, Municipal, '07, 88.  
Battleships, '07, 88; '08, 82; '09, 84.  
Bausman, Benjamin, '09, 87.  
Bauxite, '07, 90; '08, 83; '09, 87.  
Bechuanaland Protectorate, '07, 90; '08, 83; '09, 87.  
Bequerel, Antoine Henri, '08, 84.  
Beer, '07, 90; '08, 84; '09, 88.  
Beernaert, August Marie François, '09, 88.  
Beet Sugar, '07, 90; '08, 84; '09, 88.  
Beever, Charles Edward, '08, 84.  
Belgian Congo, '09, 88.  
Belgium, '07, 90; '08, 84; '09, 88.  
Bell, George, '07, 94.  
Bell, James Franklin, '07, 94.  
Belmont, Oliver Hazard Perry, '08, 90.  
Benedict, George Grenville, '07, 94.  
Benndorf, Otto, '07, 94.  
Bennet, Edward Hallaran, '07, 95.  
Bent, Sir Thomas, '09, 92.  
Bentzon, Th., '07, 95.  
Benzonate of Soda, '08, 90; '09, 92.  
Beri-Beri, '07, 95; '08, 90; '09, 92.  
Bergmann, Ernst von, '07, 95.  
Berkeley, Cal., '09, 92.  
Bermudas, '07, 95; '08, 90; '09, 92.  
Bernays, Augustus Charles, '07, 96.  
Bernier, J. E., '07, 96.

Bernstorff, Johann Hein-  
rich, Count von, '08, 90.  
Berthelot, Pierre Eugène  
Marcelin, '07, 96.  
Bethae, Solomon Hicks, '09, 92.  
Bethmann-Hollweg, Theo-  
bald Von, '09, 92.  
Bethune, Thomas G., '08, 90.  
Bezold, Wilhelm von, '07, 96.  
Bible Society, American, '07, 96; '08, 90; '09, 92.  
Biblical Criticism, '09, 93.  
Bicknell, George Augustus, '07, 96.  
Bicycling, '07, 97; '08, 91; '09, 94.  
Bier's Hyperæmia, '07, 97.  
Bikela, Dimitrios, '08, 91.  
Billiards, '07, 97.  
Billiards and Pool, '08, 91; '09, 94.  
Billot, Jean Baptiste, '07, 97.  
Billson, Sir Alfred, '07, 97.  
Binary Mixtures, '09, 94.  
Bingham, Theodore Alfred, '07, 97.  
Biological Chemistry, '07, 97; '08, 91; '09, 94.  
Biological Stations, '07, 97; '08, 91; '09, 94.  
Biology, '07, 98; '08, 91; '09, 95.  
Bird, Frederick Mayer, '08, 92.  
Bird Protection, '07, 100; '08, 93; '09, 96.  
Birdsall, William W., '09, 96.  
Birdwood, Herbert Mills, '07, 100.  
Birney, William, '07, 100.  
Birrell, Augustine, '07, 100.  
Birthrate, '07, 100; '08, 93; '09, 96.  
Bishop, Robert R., '09, 96.  
Bisland, Elizabeth, '07, 100.  
Bismarck Archipelago, '07, 100; '08, 93; '09, 96.  
Bison Reservation, '08, 93.  
 Blackburn, Joseph Clay Styles, '08, 93.  
Blackwell, Henry B., '09, 96.  
Blaydes, Frederick Henry Marvello, '08, 93.  
Blair, Andrew George, '07, 100.  
Blanc, Marie Thérèse, '07, 101.  
Blennerhassett, Sir Row-  
land, '09, 97.  
Blind, Karl, '07, 101.  
Blind Tom, '08, 93.  
Blood, '08, 93.  
Blumenthal, Jacques (Ja-  
cob von), '08, 93.  
Blunt, Matthew Marsh, '07, 101.  
Boilers, '07, 101; '09, 97.  
Boissier, Marie Louis Gas-  
ton, '08, 94.  
Bokhara, '07, 101.  
Bolivia, '07, 102; '08, 94; '09, 97.  
Boll Weevil, '08, 95; '09, 98.  
Bonaparte, Charles Joseph, '07, 103.  
Bonner, Hugh, '08, 95.  
Bontecou, Reed Brockway, '07, 103.  
Boots and Shoes, '07, 103; '09, 98.  
Borah, William Edgar, '07, 103.  
Borax, '07, 104.  
Borden, Sir Frederick Wil-  
liam, '07, 104.  
Borden, George Pennington, '07, 104.  
Borneo, '07, 104; '08, 95; '09, 99.  
Bosnia and Herzegovina, '07, 104; '08, 95; '09, 99.  
Boston, '09, 100.  
Boston Public Library, '07, 105; '08, 96; '09, 100.

- Botanical Society of America, '07, 105; '08, 96; '09, 100.  
 Botany, '07, 105; '08, 96; '09, 100.  
 Botha, Louis, '07, 108.  
 Botticher, Karl Heinrich von, '07, 108.  
 Bourgeois, Léon Victor Auguste, '07, 108.  
 Bourne, Edward Gaylord, '08, 98.  
 Bourne, Jonathan, '07, 109.  
 Bowdoin College, '07, 109; '08, 98; '09, 102.  
 Bowling, '07, 109; '08, 98; '09, 102.  
 Boxing, '07, 109; '08, 98; '09, 102.  
 Boycott, '08, 99; '09, 102.  
 Boyé, Martin Hans, '09, 103.  
 Bradley, Wm. O'Connell, '08, 100.  
 Brampton, Lord, '07, 109.  
 Brandegee, Frank Bosworth, '07, 109.  
 Brandis, Sir Dietrich, '07, 109.  
 Brandram, Rosina, '07, 109.  
 Brandy, '07, 110; '08, 100; '09, 103.  
 Brashear, John Alfred, '07, 110.  
 Braun, Ferdinand K., '09, 103.  
 Brazil, '07, 110; '08, 100; '09, 103.  
 Breakwaters, '07, 113; '08, 103; '09, 106.  
 Breeders' Association, '08, 103.  
 Breeding of Animals, '07, 113; '08, 103; '09, 107.  
 Breeding of Plants, '07, 113; '08, 103; '09, 107.  
 Brennan Monorail Railway, '07, 113.  
 Brethren, Church of the, '08, 103; '09, 107.  
 Briand, Aristide, '07, 113; '09, 107.  
 Bridges, '07, 113; '08, 104; '09, 107.  
 Briggs, Frank Obadiah, '07, 115.  
 Brisson, Eugene Henri, '07, 115.  
 Bristow, Joseph Little, '09, 109.  
 British Academy, '07, 115; '08, 106; '09, 109.  
 British Association for the Advancement of Science, '07, 115; '08, 106; '09, 109.  
 British East Africa Protectorate, '07, 115; '08, 106.  
 British Columbia, '07, 115; '08, 106; '09, 109.  
 British East Africa Protectorate, '07, 115; '08, 106; '09, 110.  
 British Gulana, '07, 116; '08, 107; '09, 110.  
 British, Honduras, '07, 116; '08, 107; '09, 110.  
 British India, '07, 117; '08, 107; '09, 111.  
 British Kowloon, '07, 117; '08, 107; '09, 111.  
 British New Guinea, '07, 117; '08, 107; '09, 111.  
 British North Borneo, '07, 117; '08, 107; '09, 111.  
 British Somaliland, '07, 117; '08, 107; '09, 111.  
 British South Africa, '07, 117; '08, 107; '09, 111.  
 British West Africa, '09, 111.  
 Broadbent, Sir William, '07, 117.  
 Bromfield, Edward Thomas, '08, 109.  
 Bromural, '08, 109.  
 Brooklyn Institute of Arts and Sciences, '07, 117; '08, 109; '09, 111.  
 Brooklyn Post-Graduate Medical School, '07, 118.  
 Brooks, Christopher Parkinson, '09, 112.  
 Brooks, John Cotton, '07, 118.  
 Brooks, William Keith, '08, 109.  
 Brotherhood of Andrew and Phillip, '07, 118; '08, 110.  
 Brotherhood of Saint Andrew, '07, 118; '08, 110; '09, 112.  
 Brough, Lionel, '09, 112.  
 Brower, Daniel Roberts, '09, 112.  
 Brown, Norris, '07, 118.  
 Brownson, Willard Herbert, '07, 118.  
 Brownsville Incident, '07, 118; '08, 110; '09, 112.  
 Brown-Tailed Moth, '07, 118; '08, 110; '09, 112.  
 Brown University, '07, 118; '08, 110; '09, 112.  
 Bruce, Sir George Barclay, '08, 110.  
 Brunel, '07, 119; '08, 110.  
 Brüll, Ignaz, '07, 119.  
 Bryan, Elmer Burritt, '09, 112.  
 Bryan, William James, '07, 119; '08, 110.  
 Bryan, William Jennings, '07, 119; '08, 110.  
 Bryce, James, '07, 119.  
 Bryn Mawr College, '07, 119; '08, 110; '09, 112.  
 Bubonic Plague, '07, 119.  
 Buchanan, Alexander, '07, 119.  
 Buchanan, William Insko, '07, 120; '08, 110; '09, 113.  
 Büchner, Eduard, '07, 120.  
 Buck, Dudley, '09, 113.  
 Buck, Leffert Lefferts, '09, 114.  
 Buckwheat, '07, 120; '08, 111; '09, 114.  
 Buffalo Drainage Canal, '09, 114.  
 Bugge, Elseus Sophus, '07, 120.  
 Building, '07, 120; '08, 111; '09, 114.  
 Bulgaria, '07, 120; '08, 111; '09, 114.  
 Bulkeley, Morgan Gardner, '07, 122.  
 Bull, William Tillinghast, '09, 116.  
 Buller, Sir Redvers Henry, '08, 114.  
 Bullock, Rufus Brown, '07, 122.  
 Bulow, Bernhard Prince von, '07, 122; '08, 114; '09, 116.  
 Burbank, Luther, '07, 122.  
 Bureau of American Ethnology, '08, 114; '09, 116.  
 Bureau of American Republics, '08, 114; '09, 116.  
 Bureau of Animal Industry, '08, 114; '09, 116.  
 Burke, John Masterson, '09, 116.  
 Burkett, Elmer Jacob, '07, 122.  
 Burma, '07, 122; '08, 114; '09, 116.  
 Burne, Sir Owen Tudor, '09, 116.  
 Burnham, Henry Eben, '07, 122.  
 Burns, William J., '07, 122.  
 Burrows, Julius Caesar, '07, 123.  
 Burt, George Albert, '09, 117.  
 Burton, Frederick Russell, '09, 117.  
 Burton, Michael Arthur (Bass), '09, 117.  
 Burton, Theodore E., '07, 123; '08, 114; '09, 117.  
 Busch, Wilhelm, '08, 115.  
 Bush, Thomas Greene, '09, 117.  
 Busse, Frederick A., '07, 123.  
 Bussey Institution, '08, 115.  
 Butler, Arthur Gray, '09, 117.  
 Butler, John George, '09, 117.  
 Butler, Matthew Galbraith, '09, 117.  
 Butter, '07, 123; '08, 115; '09, 118.  
 Buttrick, Wallace, '07, 123.  
 Buxton, Sidney Charles, '07, 123.  
 Cabell, Benjamin Francis, '09, 118.  
 Cables, '07, 123.  
 Caderas, '07, 123.  
 Caird, Edward, '08, 115.  
 Calcium, '08, 115.  
 Calhoun, William James, '09, 118.  
 California, '07, 123; '08, 115; '09, 118.  
 California, University of, '07, 123; '08, 118; '09, 124.  
 Calumet Drainage Canal, '07, 123.  
 Calvin, Samuel, '07, 123.  
 Calvo, Carlos, '07, 123.  
 Calvo Doctrine, '07, 123.  
 Cambodia, '07, 123; '08, 119; '09, 124.  
 Camerun, '07, 123; '08, 119; '09, 124.  
 Campaign, Presidential, '08, 119.  
 Campbellites, or Campbell Baptists, '07, 123; '08, 120.  
 Campbell, Lewis, '08, 119.  
 Campbell - Bannerman, Sir Henry, '07, 123; '08, 119.  
 Camphor, '08, 120.  
 Canada, Dominion of, '07, 123; '08, 120; '09, 124.  
 Canadian Canal, '09, 132.  
 Canadian Conference of Charities and Corrections, '09, 132.  
 Canals, '07, 141; '08, 131; '09, 132.  
 Canary Islands, '09, 134.  
 Cancer, '07, 143; '08, 131; '09, 134.  
 Canet, Gustave, '08, 132.  
 Canfield, James Hulme, '09, 135.  
 Canning, Sir Samuel, '08, 132.  
 Canning of Fruit, '08, 132; '09, 135.  
 Cannon, Joseph G., '07, 143; '09, 135.  
 Cape Cod Canal, '07, 143; '09, 136.  
 Cape Colony, '07, 143; '08, 132; '09, 136.  
 Cape to Cairo Railway, '09, 137.  
 Cape Verde Islands, '07, 145; '08, 134; '09, 137.  
 Capital Punishment, '08, 134.  
 Cardinals, '07, 145.  
 Carducci, Giosuè Alessandro, '07, 146.  
 Carey, Rosa Nouchette, '09, 137.  
 Carlos I., '08, 134.  
 Carlos de Bourbon, Duke of Madrid, '09, 138.  
 Carmack, Edward Ward, '08, 135.  
 Carnegie, Andrew, '07, 146.  
 Carnegie Foundation, '08, 135; '09, 138.  
 Carnegie Institution of Washington, '07, 146; '08, 135; '09, 138.  
 Carney, William H., '08, 135.  
 Caroline Islands, '07, 147; '08, 135; '09, 139.  
 Carpenter, George Rice, '09, 139.  
 Carrington, Charles Robert Wynn-Carrington, '07, 147.  
 Carroll, James, '07, 147.  
 Carter, Thomas Henry, '07, 147.

- Carson, Perry, '09, 139.  
 Carus, Paul, '07, 147.  
 Caruso, Enrico, '07, 147.  
 Casement, J. S., '09, 139.  
 Casimir-Périer, Jean Paul Pierre, '07, 147.  
 Castro, Cipriano, '07, 147; '08, 135.  
 Catalo, '07, 148.  
 Catalysis, '09, 139.  
 Catholics, '07, 148.  
 Catholic University of America, '07, 148; '08, 135; '09, 139.  
 Catskill Dam, '09, 139.  
 Cattle, '08, 136; '09, 139.  
 Cattle Breeding, '07, 148.  
 Causeway, '08, 136.  
 Cavalry, '07, 148; '08, 136; '09, 139.  
 Cayenne, '07, 148; '08, 136.  
 Cayman Islands, '07, 148; '08, 136; '09, 139.  
 Cellite, '09, 139.  
 Cement, '07, 148; '08, 136; '09, 139.  
 Census, '09, 140.  
 Centenaries and Anniversaries, '09, 140.  
 Central America, '07, 148; '08, 136; '09, 142.  
 Central American Court of Justice, '09, 142.  
 Central Bank, '09, 142.  
 Cervera y Topete, Pascual Comte de Jerez, '09, 144.  
 Ceylon, '07, 149; '08, 136; '09, 144.  
 Chadwick, Henry, '08, 137.  
 Chadwick, Mrs. Cassie L., '07, 150.  
 Chaffin, Eugene Wilder, '08, 137.  
 Chamberlain, Daniel Henry, '07, 150.  
 Chamberlain, George Earle, '08, 138; '09, 145.  
 Chamberlain, Jacob, '08, 138.  
 Chamberlain, Joseph, '07, 150.  
 Champney, Benjamin, '07, 150.  
 Chang Chih-Tung, '09, 145.  
 Chanler, Lewis Stuyvesant, '07, 151.  
 Chapman, Henry Cadwalader, '09, 145.  
 Charcot, Jean, '07, 151.  
 Charity Organization, '07, 151; '08, 138; '09, 145.  
 Charteris, Archibald Hamilton, '08, 139.  
 Charter Reform, '09, 146.  
 Chartran, Theobald, '07, 153.  
 Chase, Solon, '09, 146.  
 Chauchard, Hippolyte François Alfred, '09, 146.  
 Chautauqua Institution, '07, 153; '08, 139; '09, 147.  
 Cheese, '07, 153; '08, 140; '09, 147.  
 Chemical Affinity, '09, 147.  
 Chemical Society, American, '07, 153; '08, 140; '09, 147.  
 Chemistry, '07, 153; '08, 140; '09, 147.  
 Chemistry, Industrial, '07, 157; '08, 143; '09, 150.  
 Chesapeake - Delaware Ship Canal, '07, 159.  
 Chess, '07, 159; '08, 145; '09, 154.  
 Chicago, '08, 145; '09, 154.  
 Chicago, University of, '07, 160; '08, 145; '09, 154.  
 Chicago Drainage Canal, '07, 160.  
 Child Labor, '07, 160; '08, 146; '09, 154.  
 Child Labor Committee, National, '07, 161; '09, 155.  
 Children's Aid Society, '07, 162.  
 Children's Courts, '07, 162; '08, 147; '09, 155.  
 Chile, or Chili, '07, 162; '08, 147; '09, 155.  
 Chinnets, '07, 164; '08, 149.  
 Chinese Empire, '07, 164; '08, 149; '09, 158.  
 Ching, Prince, '07, 172.  
 Chivers, Elijah Eynon, '07, 172.  
 Chlorophyll, '09, 164.  
 Choate, Joseph Hodges, '07, 172.  
 Cholemia, '09, 164.  
 Cholera, '07, 172; '09, 164.  
 Christian Catholics, '07, 172.  
 Christian Connection, '07, 172; '08, 160; '09, 164.  
 Christian Endeavor, '07, 173; '08, 160; '09, 164.  
 Christians, '07, 172; '08, 160; '09, 164.  
 Christian Scientists, '07, 173; '08, 160; '09, 165.  
 Christian Socialists, '08, 160.  
 Christmas Island, '07, 173; '08, 160.  
 Churches of God, '09, 165.  
 Churchill, Winston, '07, 173.  
 Churchill, Winston Leonard Spencer, '07, 173.  
 Church of Christ, Scientist, '07, 173; '08, 160; '09, 165.  
 Churches of God, '07, 173; '08, 160.  
 Cigars and Cigarettes, '07, 174; '08, 161; '09, 165.  
 Civic Association, American, '09, 165.  
 Civic Federation, National, '07, 174; '08, 161; '09, 165.  
 Civic Training, '09, 166.  
 Civil Service, '07, 174; '08, 161.  
 Civil Service Reform League, National, '09, 166.  
 Clapp, Moses Edwin, '07, 174.  
 Clark, Clarence Don, '07, 174.  
 Clark, Gaylord Parsons, '07, 174.  
 Clarke, Benjamin Franklin, '08, 161.  
 Clarke, Sir Caspar Purdon, '07, 174.  
 Clarke, James P., '07, 174.  
 Clark University, '07, 174; '08, 161; '09, 167.  
 Clay, Alexander Stevens, '07, 174.  
 Cleborne, Christopher James, '09, 167.  
 Clearing House, '07, 174; '08, 161.  
 Clémenceau, George Benjamin Eugène, '07, 175.  
 Clemens, Samuel Langhorne, '07, 176.  
 Clémentine of Saxe-Coburg Gotha, '07, 176.  
 Clerke, Agnes Mary, '07, 177.  
 Cleveland, Grover, '08, 162.  
 Climate, '09, 167.  
 Climatological Association, American, '07, 177.  
 Clous, John Walter, '08, 163.  
 Coal, '07, 177; '08, 163; '09, 167.  
 Coast Defense, '07, 178.  
 Cocaine Habit, '07, 178; '08, 167; '09, 169.  
 Cochín-China, '07, 179; '08, 167; '09, 170.  
 Cochran, David Henry, '09, 170.  
 Cocos, or Keeling Islands, '07, 179; '08, 167; '09, 170.  
 Coffee, '08, 167.  
 Coghlan, Joseph Bullock, '07, 179; '08, 168.  
 Cogswell, James Kelsey, '08, 168.  
 Coins, Foreign, '07, 179; '08, 168; '09, 170.  
 Coke, '07, 181; '08, 169; '09, 170.  
 Coleman, Leighton, '07, 181.  
 Colgate University, '09, 172.  
 College of Physicians and Surgeons, N. Y., '07, 181.  
 College of the City of New York, '07, 181; '08, 170.  
 Colleges, '09, 172.  
 Colleges, Agricultural, '08, 170; '09, 172.  
 Collier, Peter Fenelon, '09, 172.  
 Collins, John Churton, '08, 170.  
 Colombia, '07, 181; '08, 170; '09, 172.  
 Colorado, '07, 183; '08, 172; '09, 173.  
 Colorado Springs, '09, 176.  
 Colored Methodists, '07, 184; '08, 174; '09, 176.  
 Colson, James Major, '09, 176.  
 Columbia, British, '07, 185; '08, 174; '09, 176.  
 Columbia, District of, '07, 185; '08, 174; '09, 176.  
 Columbia University, '07, 185; '08, 174; '09, 176.  
 Comba, Richard, '07, 185.  
 Combes, Justin, Louis Emile, '07, 185.  
 Comets, '07, 186; '08, 175; '09, 176.  
 Comoro Islands, '07, 186; '08, 175; '09, 176.  
 Concerts, '08, 176; '09, 176.  
 Concrete, '07, 186; '08, 175; '09, 176.  
 Conduits, '08, 176.  
 Conger, Edwin Hurd, '07, 186.  
 Congestion of Population, '08, 176.  
 Congo, Belgian, '09, 177.  
 Congo Free State, '07, 187; '08, 176; '09, 180.  
 Congo, French, '07, 188; '08, 178; '09, 180.  
 Congo Reform Association, '07, 189; '08, 178.  
 Congregationalism, '07, 189; '08, 178; '09, 180.  
 Congregational Methodist Church, '07, 189; '08, 179; '09, 181.  
 Congress, '07, 189; '08, 179; '09, 181.  
 Congressional Library, '07, 189; '08, 179.  
 Connecticut, '07, 189; '08, 179; '09, 181.  
 Conness, John, '09, 182.  
 Conried, Heinrich, '09, 182.  
 Conservation Association, National, '09, 183.  
 Conservation of Mass., '09, 183.  
 Conservation of National Resources, '08, 181; '09, 183.  
 Construction, '07, 192; '08, 181; '09, 183.  
 Consular Service, '07, 192; '08, 181.  
 Consumption, '07, 192; '08, 181.  
 Converse, George Albert, '09, 183.  
 Conway, Moncure Daniel, '07, 192.  
 Cook, Frederick Albert, '09, 184.  
 Cook Islands, '09, 184.  
 Cookson, Bryan, '09, 184.  
 Cooper, Sir Alfred, '08, 181.  
 Co-operation, '08, 181.  
 Cooper Union, '07, 192; '08, 181; '09, 184.  
 Coppée, François Edouard Joachim, '08, 182.  
 Copper, '07, 192; '08, 182; '09, 184.  
 Coppinger, John Joseph, '09, 186.  
 Coquelin, Alexandre Honoré Ernest, '09, 186.  
 Coquelin, Benoit-Constant, '09, 186.  
 Corbin, Henry Clark, '09, 186.  
 Corey, William Ellis, '07, 193.  
 Corinth, Excavations in, '08, 183; '09, 187.  
 Corn, '07, 193; '08, 183; '09, 187.  
 Corn Exposition, '08, 184.  
 Cornell University, '07, 195; '08, 184; '09, 188.  
 Cortelyou, George Bruce, '07, 195.

Costa Rica, '07, 185; '08, 185; '09, 188.  
 Cost of Food, '09, 188.  
 Cotter, Joseph B., '09, 189.  
 Cotton, '07, 196; '08, 185; '09, 189.  
 Cotton, Charles Stanhope, '09, 191.  
 Cottonseed Oil and Cotton Products, '07, 199; '08, 188; '09, 191.  
 Country Life Commission, '08, 188; '09, 191.  
 Court Tennis, '07, 199; '08, 188.  
 Courts and Lawmaking, '07, 199.  
 Cows, '08, 188; '09, 191.  
 Craighill, William Price, '08, 191.  
 Crane, Charles R., '09, 191.  
 Crane, Winthrop Murray, '07, 199.  
 Crapsey, Algernon Sidney, '07, 199.  
 Crawford, Coe Isaac, '09, 191.  
 Crawford, Oswald, '09, 191.  
 Creel, Enrique C., '07, 199.  
 Cremation of Garbage, '07, 199; '08, 188; '09, 191.  
 Cremation of the Dead, '07, 199.  
 Creighton University, '07, 199.  
 Crete, '07, 199; '08, 188; '09, 191.  
 Crete, Excavations in, '08, 188; '09, 192.  
 Cretoni, Serafin, '09, 192.  
 Cricket, '07, 200; '08, 188; '09, 192.  
 Crime, '07, 200.  
 Crittenden, Theodore Thomas, '09, 192.  
 Crittenton, Charles N., '09, 192.  
 Crosby, Ernest Howard, '07, 201.  
 Cross - Country Runs, '07, 201; '08, 188; '09, 193.  
 Cruelty to Animals, American Society for the Prevention of, '07, 202; '08, 189; '09, 193.  
 Cruelty to Children, New York Society for the Prevention of, '07, 202; '08, 189; '09, 193.  
 Cruiser-Battleships, '08, 189.  
 Cruisers, '07, 202.  
 Cruveilh, Jean Sophie Charlotte, '07, 202.  
 Cryoscopy, '07, 202.  
 Cuba, '07, 202; '08, 189; '09, 193.  
 Cuckson, John, '07, 207.  
 Culberson, Charles A., '07, 207.  
 Culbertson, James Coe, '08, 193.  
 Cullinan Diamond, '08, 193.  
 Cullingworth, Charles James, '08, 193.  
 Cumberland Presbyterian Church, '07, 207; '08, 194; '09, 195.  
 Cummins, Albert Baird, '08, 194; '09, 196.  
 Curaçao, '07, 207; '08, 194; '09, 196.  
 Curie, Pierre, '07, 209.  
 Curling, '07, 209; '08, 194; '09, 193.  
 Currency, '07, 209; '08, 194; '09, 196.  
 Currie, Sir Donald, '09, 197.  
 Curtis, Alfred Allen, '08, 196.  
 Curtis, Charles, '07, 213.  
 Curson, George Nathaniel, '07, 213.  
 Cushman, Francis W., '09, 197.  
 Cust, Robert Needham, '09, 197.  
 Customs Court, '09, 197.  
 Customs Frauds, '09, 197.  
 Cuyler, Theodore Ledyard, '09, 197.

Cyprus, '07, 213; '08, 197; '09, 197.  
 Cycling, '07, 213; '08, 196; '09, 198.  
 Dahomey, '07, 214; '08, 197; '09, 188.  
 Dailey, Peter F., '08, 197.  
 Dairying, '07, 214; '08, 197; '09, 188.  
 Dalai Lama, '08, 199.  
 Dams, '07, 216; '08, 199; '09, 200.  
 Danbury Hatters' Case, '08, 200.  
 Dandridge, Elizabeth (Taylor), '09, 200.  
 Daniels, George Henry, '08, 200.  
 Daniell, Moses Grant, '09, 200.  
 Danish Antilles, '07, 217; '08, 200; '09, 201.  
 Danish Colonies, '07, 217; '08, 200.  
 Danish West Indies, '08, 200; '09, 201.  
 Dartmouth College, '07, 217; '08, 200; '09, 201.  
 D'Artot-Padilla, Marguerite Josephine Désirée Montagney, '07, 217.  
 Darwin Memorial, '08, 200; '09, 201.  
 Davidson, John, '09, 201.  
 Davis, Charles Abbott, '08, 200.  
 Davis, Charles Henry, '07, 217.  
 Davis, George Breckenridge, '07, 217.  
 Davis, James, '07, 217.  
 Davis, Jeff, '07, 217.  
 Davis, John Chandler, Bancroft, '07, 217.  
 Davis, John William, '07, 218.  
 Davis, Mary Evelyn (Moore), '09, 201.  
 Dayton, James H., '07, 218.  
 Deakin, Alfred, '07, 218.  
 De Armond, David A., '09, 202.  
 Death Rate, '07, 218; '08, 200; '09, 202.  
 Debs, Eugene Victor, '08, 200.  
 Debussy, Achille Claude, '08, 201.  
 Decle, Lionel, '07, 218.  
 Delamater, George Wallace, '07, 218.  
 Delaware, '07, 218; '08, 201; '09, 202.  
 Delcassé, Théophile, '08, 202.  
 Demolins, Edmond, '07, 220.  
 Denatured Alcohol, '07, 220.  
 Denison, Charles, '09, 203.  
 Denmark, '07, 220; '08, 202; '09, 203.  
 Depew, Chauncey Mitchell, '07, 222.  
 De Peyster, John Watts, '07, 222.  
 Deposit Guarantee, '08, 205; '09, 205.  
 Derby, Frederick Arthur Stanley, Earl of, '08, 205.  
 Derby, Richard Henry, '07, 222.  
 Des Moines, Iowa, '09, 205.  
 D'Estournelles, de Constant, Paul H. B., '09, 205.  
 De Staal, Baron M. G., '07, 222.  
 Devonshire, Spencer Compton Cavendish, Eighth Duke of, '08, 205.  
 De Witt, Calvin, '08, 205.  
 Dhanis, Baron, '09, 205.  
 Diamonds, '08, 206.  
 Diamonds, American, '07, 223.  
 Dick, Charles, '07, 223.  
 Dickinson, Jacob McGavick, '09, 205.  
 Dietetics, '08, 206; '09, 205.  
 Dinuzulu, '08, 206.  
 Diplomatic Service, '07, 223.  
 Direct Primaries, '09, 205.

Discharge of Electricity through Gases, '07, 223.  
 Disciples of Christ, '07, 223; '08, 206; '09, 205.  
 Diseases of Animals, '07, 223; '08, 207; '09, 205.  
 Diseases of Plants, '07, 223.  
 District of Columbia, '07, 223; '08, 207; '09, 206.  
 Divorce, '07, 225; '08, 208.  
 Dix, Morgan, '08, 209.  
 Dixon, Joseph Moore, '07, 225.  
 Dixon, Thomas, Jr., '07, 225.  
 Docks, '07, 226; '08, 210.  
 Dodge, Francis Safford, '08, 210.  
 Dodge, Theodore Ayrault, '09, 206.  
 Dods, Marcus, '09, 207.  
 Dohrn, Anton, '09, 207.  
 Dolliver, Jonathan, Prentiss, '07, 226.  
 Dominica, '08, 210; '09, 207.  
 Dominican Republic, '08, 210; '09, 207.  
 Dorchester, Daniel, '07, 226.  
 Douglas, William Lewis, '07, 226.  
 Dourine, '07, 227.  
 Dowie, John Alexander, '07, 227.  
 Doyle, John Andrew, '07, 227.  
 Drachmann, Holger Hendrich Herholdt, '08, 210.  
 Drainage, '07, 227; '08, 211; '09, 207.  
 Drama, '07, 228; '08, 211; '09, 208.  
 Dredging, '08, 214; '09, 211.  
 Dreyfus, Alfred, '07, 230; '08, 215.  
 Drought, '08, 215; '09, 212.  
 Druce Case, '07, 231.  
 Drug Habit, '07, 231; '08, 215.  
 Drugs, '07, 231.  
 Drum, Richard Coulton, '09, 212.  
 Drummond, William Henry, '07, 231.  
 Drury, John Benjamin, '09, 212.  
 Drury-Lowe, Sir Drury Curzon, '08, 215.  
 Dry Docks, '09, 212.  
 Du bu fe, Edouard Marie Guillaume, '09, 212.  
 Ducey, Thomas James, '09, 212.  
 Dudley, William Humble Ward, Second Earl of, '08, 215.  
 Dudley, William Ward, '09, 213.  
 Duhamel, Joseph Thomas, '09, 213.  
 Dukes Disease, '07, 231.  
 Dunkers or Dunkards, '07, 231; '08, 215; '09, 213.  
 Dunmore, Charles Augustus Murray, Earl of, '07, 231.  
 Dunne, Edward Fitzsimmons, '07, 231.  
 Du Pont, Henry Algernon, '07, 231.  
 Durand, Edward Dana, '09, 213.  
 Durham, Israel W., '09, 213.  
 Durum Wheat, '07, 233.  
 Dutch East Indies, '07, 232; '08, 215; '09, 213.  
 Dutcher, Silas Belden, '09, 214.  
 Dutch Gulana, or Surinam, '07, 232; '08, 216; '09, 214.  
 Dutch Reformed Church, '07, 232; '08, 216; '09, 214.  
 Dutch West Indies, '07, 233; '08, 216; '09, 214.  
 Dyas, Ada, '08, 216.  
 Dyer, Louis, '08, 216.  
 Dynamo Electric Machinery, '07, 233; '08, 216; '09, 214.  
 Dysentery, '08, 217; '09, 215.  
 Earthquakes, '07, 233; '08, 217; '09, 215.  
 East Africa, British, '08, 219; '09, 216.  
 East Africa, German, '07, 234; '08, 219; '09, 216.

- Eckles, James Herron, '07, 234.  
 Eclipse, '08, 219; '09, 216.  
 Economic Association, American, '07, 234; '08, 219; '09, 216.  
 Economic Entomology, '08, 219; '09, 216.  
 Economic Geology, '09, 216.  
 Ecuador, '07, 235; '08, 219; '09, 216.  
 Ecuadorian Exposition, '09, 217.  
 Eddy, William Abner, '09, 217.  
 Edaiji Case, '07, 236.  
 Eddy, Mrs. Mary Baker Glover, '07, 236.  
 Edebohis, George Michael, '08, 220.  
 Educational Association, '07, 236; '08, 220; '09, 217.  
 Education in the United States, '07, 226; '08, 220; '09, 217.  
 Edwards, William Henry, '09, 219.  
 Egan, Maurice F., '07, 239.  
 Egypt, '07, 239; '08, 222; '09, 219.  
 Egypt, Excavations in, '08, 225; '09, 221.  
 Egyptian Exploration Fund, '07, 243.  
 Electoral Reform, '09, 221.  
 Electric Accidents, '07, 243.  
 Electrical Commissions, International, '08, 225.  
 Electrical Industries, '07, 243; '08, 225; '09, 225.  
 Electric Lighting, '07, 243; '08, 225; '09, 225.  
 Electricity, '07, 244.  
 Electric Power, Transmission of, '09, 226.  
 Electric Railways, '07, 244; '08, 225; '09, 226.  
 Electro-Chemistry, '07, 245.  
 Electron, '07, 245; '08, 226.  
 Elements, Chemical, '07, 245; '08, 226; '09, 227.  
 Elevators, '07, 246; '08, 226.  
 Elgar, Francis, '09, 227.  
 Eliot, Charles William, '08, 227; '09, 227.  
 Elliot, Samuel Richard, '09, 227.  
 Elwin, Edmund Henry, '09, 227.  
 Embankment, '08, 227.  
 Emerson, Edwin, '08, 227.  
 Emerson, Ellen, '09, 228.  
 Emery, Henry Crosby, '09, 228.  
 Emigration, '08, 227; '09, 228.  
 Emmanuel Movement, '08, 227; '09, 228.  
 Empire Fair, '09, 228.  
 Employers' Liability, '07, 246; '08, 228; '09, 228.  
 Employment Agencies, '07, 247.  
 Ende, Hermann, '07, 247.  
 Engineering, '08, 229; '09, 229.  
 England, Church of, '07, 247; '08, 229; '09, 229.  
 Enteric Fever, '07, 247; '08, 229; '09, 229.  
 Entomology, '07, 247; '08, 229; '09, 229.  
 Epilepsy, '07, 248; '08, 230; '09, 230.  
 Episcopal Church, '07, 248; '08, 231; '09, 231.  
 Episcopal Church, Reformed, '07, 248; '08, 231; '09, 231.  
 Epworth League, '07, 248; '08, 231; '09, 231.  
 Erben, Henry, '09, 231.  
 Erhardt, Joel Benedict, '09, 231.  
 Erichsen, Mylius, '07, 249; '08, 231.  
 Eritrea, or Erythraea, '07, 249; '08, 231; '09, 231.  
 Esmarch, Johannes Friedrich August von, '08, 231.  
 Esperanto, '07, 249; '08, 231.  
 Estes, Dana, '09, 231.  
 Ethical Culture, Societies for, '07, 249; '08, 231; '09, 231.  
 Ethiopian Railway, '08, 232.  
 Ethnology, '08, 232; '09, 232.  
 Eucken, Rudolf Christoph, '08, 232.  
 Eugenics, '07, 249; '09, 232.  
 Evangelical Alliance, '07, 249; '08, 232; '09, 232.  
 Evangelical Association, '07, 249; '08, 232; '09, 232.  
 Evans, George Essex, '09, 232.  
 Evans, Sir John, '08, 232.  
 Evans, Robley Dunglison, '08, 232.  
 Everest, Mount, '09, 232.  
 Evolution, '07, 250; '08, 232; '09, 232.  
 Ewald, Carl, '08, 232.  
 Exchanges, '09, 232.  
 Experiment Stations, '08, 233; '09, 233.  
 Exploration, '07, 251; '08, 233; '09, 233.  
 Explosives, '07, 251; '09, 235.  
 Expositions, '07, 251; '08, 234; '09, 235.  
 Eye, '07, 251.  
 Failures, '08, 235; '09, 236.  
 Fairbanks, Charles Warren, '07, 251.  
 Falk, Max, '08, 235.  
 Falkland Islands, '07, 251; '08, 235; '09, 236.  
 Fallières, Clement Armand, '07, 251.  
 Farm Animals, '07, 252; '08, 235; '09, 236.  
 Farm Animals, Diseases of, '07, 252; '08, 235; '09, 236.  
 Farm Education, '08, 236; '09, 236.  
 Farquhar, Norman von Heldreich, '07, 252.  
 Farren, William, '08, 236.  
 Fausboll, Michael Viggo, '08, 236.  
 Fayrer, Sir Joseph, '07, 252.  
 Federal Childrens' Bureau, '09, 236.  
 Federal Council of the Church of Christ in America, '07, 252; '08, 236; '09, 236.  
 Federated Malay States, '07, 253; '08, 237; '09, 237.  
 Feeding Stuff, '08, 238; '09, 237.  
 Fencing, '07, 253; '08, 238; '09, 237.  
 Fenn, George Manville, '09, 237.  
 Fenollosa, Ernest Francisco, '08, 238.  
 Ferdinand, I., '08, 238.  
 Ferdinand IV., '08, 238.  
 Fergusson, Arthur Walsh, '08, 238.  
 Ferreira Do Amaral, Francisco Joao, '08, 238.  
 Ferrer y Guardia Francisco, '09, 237.  
 Ferrero, Guglielmo, '08, 238.  
 Fertilizers, '07, 253; '08, 239; '09, 238.  
 Field, Henry Martyn, '07, 254.  
 Field, Sir William Ventris, '07, 254.  
 Field, Museum of Natural History, '07, 254.  
 Fiji Islands, '07, 255; '08, 239; '09, 239.  
 Filters, Filtration, '07, 255; '08, 240; '09, 239.  
 Financial Review, '07, 255; '08, 240; '09, 239.  
 Finch, Francis Miles, '07, 264.  
 Finch, George Henry, '07, 264.  
 Finland, '07, 265; '08, 244; '09, 242.  
 Finley, Martha, '09, 243.  
 Fire Insurance, '08, 244; '09, 243.  
 Fire Losses, '09, 243.  
 Fire Protection, Municipal, '07, 266; '08, 244; '09, 243.  
 Fish and Fisheries, '09, 244.  
 Fisher, George Park, '09, 245.  
 Fischer, Kuno, '07, 266.  
 Fisher, Andrew, '08, 245.  
 Fisheries, '07, 267; '08, 246.  
 Fitch, Clyde William, '09, 245.  
 Fithian, Edward, '08, 246.  
 Fitzgerald, James Newbury, '07, 268.  
 Fitzgibbon, Gerald, '09, 246.  
 Flagler, Isaac Van Vleck, '09, 246.  
 Flax, '07, 268; '08, 246; '09, 246.  
 Fletcher, Horace, '07, 268.  
 Fletcher, James, '08, 247.  
 Flint, Frank Putnam, '07, 268.  
 Florence Crittenton Mission, '09, 246.  
 Florida, '07, 269; '08, 247; '09, 246.  
 Flour, '07, 271.  
 Fluorescein, '08, 248.  
 Fluorescence, '07, 271.  
 Flynt, Josiah, '07, 271.  
 Fogazzaro, Antonio, '07, 271.  
 Folk, Joseph Wingate, '07, 271.  
 Folk-Lore Society, '07, 271; '08, 249; '09, 248.  
 Food and Nutrition, '07, 271; '08, 249; '09, 248.  
 Foot and Mouth Disease, '08, 251; '09, 250.  
 Football, '07, 275; '08, 251; '09, 250.  
 Foraker, Joseph Benson, '07, 275; '08, 251.  
 Fordham University, '07, 276; '08, 252.  
 Foreign Missions, '07, 276.  
 Foreign Missions, Amer. Board of Commissioners for, '07, 276; '08, 252; '09, 250.  
 Forest Fires, '08, 252.  
 Forest Legislation, '09, 251.  
 Forestry, '07, 276; '08, 252; '09, 251.  
 Forestry Association, American, '07, 278; '08, 254.  
 Forests, National, '07, 279; '09, 251.  
 Forest Schools, '09, 251.  
 Formosa, '07, 279; '08, 254; '09, 253.  
 Fort, John Franklin, '07, 279; '08, 255.  
 Fortis, Alessandro, '09, 253.  
 Foster, Murphy James, '07, 279.  
 Foster, Sir Michael, '07, 280.  
 Foundation for the Promotion of Industrial Peace, '07, 280.  
 Foundations, '08, 255.  
 Fowler, Charles Henry, '08, 256.  
 France, '07, 281; '08, 256; '09, 254.  
 Francis Ferdinand, '07, 284.  
 Francis Joseph I., '08, 265.  
 Franco, Joao, '08, 265.  
 Franco-British Exhibition, '08, 265.  
 Franklin, Samuel Rhoads, '09, 264.  
 Franz Ferdinand, '08, 265.  
 Fraternal Organizations, '07, 285; '08, 265; '09, 264.  
 Frazier, James B., '07, 285.  
 Frear, Walter Francis, '07, 285.  
 Fréchette, Louis Honoré, '08, 266.  
 Frederick VIII, King of Denmark, '07, 285.

- Frederick, William Louis, Grand Duke of Baden, '07, 286.  
 Free Masons, '07, 286.  
 Free Methodist Church, '07, 286.  
 Freer, Frederick Warren, '08, 266.  
 Free-Trade Congress, '08, 266.  
 French Academy, '08, 266; '09, 265.  
 French Canals, '09, 265.  
 French Congo, '07, 286; '08, 266; '09, 265.  
 French Guiana, '07, 286; '08, 267; '09, 265.  
 French Guinea, '07, 286; '08, 267; '09, 265.  
 French India, '07, 287; '08, 267; '09, 265.  
 French Indo-China, '07, 287; '08, 267; '09, 266.  
 French Literature, '07, 287; '08, 268; '09, 266.  
 French Oceania, '07, 290; '08, 270.  
 French Sahara, '08, 270; '09, 269.  
 French Somaliland, '07, 290; '08, 271.  
 French Somali Coast, '09, 269.  
 French West Africa, '07, 290; '08, 271; '09, 269.  
 Frew, William Nimick, '07, 291.  
 Frick, Henry Clay, '07, 291.  
 Friends, The, '07, 291; '08, 271; '09, 270.  
 Frith, William Powell, '09, 270.  
 Fruit Growing Industry, '08, 271; '09, 270.  
 Fruit Preserving, '08, 271.  
 Fruits and Fruit Growing, '07, 292.  
 Fulton, Charles William, '07, 292.  
 Fungicides, '09, 270.  
 Furnaces, Garbage, '07, 292.  
 Furtwangler, Adolf, '07, 292.  
 Gallard, David Du Bose, '07, 292.  
 Gallifet, Gaston Alexandre Auguste, Marquis de, '09, 270.  
 Galloway, Charles Betts, '09, 271.  
 Galveston, Texas, '09, 271.  
 Galveston Plan, '07, 292.  
 Galzietke, '07, 292.  
 Gambia, '07, 292; '08, 271; '09, 271.  
 Gambian Horse Disease, '07, 292.  
 Gamble, Robert Jackson, '07, 292.  
 Game Laws for 1907, '07, 292.  
 Game Laws of 1908, '08, 271.  
 Game Laws of 1909, '09, 271.  
 Garbage and Refuse Disposal, '07, 293; '08, 272; '09, 272.  
 Garden, Mary, '08, 273.  
 Garden Cities, '08, 273.  
 Garfield Harry Augustus, '07, 294; '08, 273.  
 Garfield, James Rudolph, '07, 294.  
 Garman, Charles Edward, '07, 294.  
 Garrison, Wendell Phillips, '07, 294.  
 Garrison, William Lloyd, '09, 272.  
 Gary, '08, 273.  
 Gary, Frank Boyd, '08, 273.  
 Gas, '07, 294; '08, 273; '09, 272.  
 Gas Engines, '07, 295; '08, 274; '09, 274.  
 Gas, Natural, '07, 296; '08, 274; '09, 274.  
 Gates, Frederick Taylor, '07, 296.  
 Gates, John Warne, '07, 296.  
 Gatschet, Albert Samuel, '07, 296.  
 Gatti-Casazza, Giulio, '08, 274.  
 Gatun Dam, '09, 274.  
 Gaudry, Jean Albert, '08, 274.  
 Gaynor, William Jay, '09, 274.  
 Gebhart, Emile, '08, 274.  
 Gems, '07, 296; '08, 275.  
 General Education Board, '08, 275; '09, 275.  
 General Federation of Women's Clubs, '07, 296; '08, 275; '09, 275.  
 Generators, '08, 275; '09, 275.  
 Genetics, '08, 275; '09, 275.  
 Geographical Society, American, '07, 296; '08, 275; '09, 275.  
 Geographic Society, National, '07, 296; '08, 275; '09, 275.  
 Geological Society of America, '07, 296; '08, 275; '09, 275.  
 Geology, '07, 296; '08, 275; '09, 275.  
 George Frederick Ernest Albert, Prince of Wales, '07, 299.  
 George Junior Republic, '07, 300; '08, 278; '09, 278.  
 Georgetown University, '09, 278.  
 Georgia, '07, 300; '08, 278; '09, 278.  
 German Baptist Brethren, '07, 302; '08, 280; '09, 280.  
 German East Africa, '07, 302; '08, 280; '09, 280.  
 German Evangelical Protestant Church, '07, 303; '09, 280.  
 German Evangelical Synod of North America, '07, 303; '08, 280; '09, 280.  
 German Literature and Drama, '07, 304; '08, 281; '09, 281.  
 German Methodist Church, '07, 305; '08, 288; '09, 284.  
 German New Guinea, '07, 305; '08, 283; '09, 284.  
 German Reformed Church, '07, 306; '08, 283; '09, 284.  
 German Samoa, '07, 306; '08, 283; '09, 284.  
 German Solomon Islands, '07, 306; '08, 284; '09, 284.  
 German Southwest Africa, '07, 306; '08, 284; '09, 284.  
 Germany, '07, 307; '08, 284; '09, 285.  
 Geronimo, '09, 295.  
 Gevaert, François Auguste, '08, 296.  
 Gibbs, Oliver Wolcott, '08, 296.  
 Gibraltar, '07, 315; '08, 297; '09, 295.  
 Gifts and Bequests, '07, 315; '08, 297; '09, 295.  
 Gilbert & Ellice Islands, '08, 304.  
 Gilder, Richard Watson, '09, 305.  
 Gill, Sir David, '07, 326.  
 Gillespie, George De Normandie, '09, 306.  
 Gilman, Arthur, '09, 306.  
 Gilman, Daniel Colt, '08, 305.  
 Girls Friendly Society in America, '07, 326; '08, 305.  
 Gipsy Moth, '09, 306.  
 Glaciation, '09, 306.  
 Glanders in Man, '08, 305.  
 Glass, Henry, '08, 305.  
 Glasson, Ernest Desiré, '07, 326.  
 Glenn, Robert Brodnax, '07, 326.  
 Glyceroles Trypsin, '07, 326.  
 Godfrey, Edward Settle, '07, 326.  
 Godwin-Austen, Mt., '09, 306.  
 Goethals, George Washington, '07, 326.  
 Gold, '07, 326; '08, 305; '09, 306.  
 Gold Coast, '07, 329; '08, 307; '09, 306.  
 Goldschmidt, Otto, '07, 329.  
 Golf, '07, 329; '08, 307; '09, 307.  
 Gomez, José Miguel, '08, 308; '09, 308.  
 Goode, John, '09, 308.  
 Goodrich, Caspar Frederick, '09, 308.  
 Goodsall, Daniel Ayres, '09, 308.  
 Gordin, Jacob M., '09, 308.  
 Gore, Thomas Pryor, '08, 308.  
 Gorst, Sir Eldon, '07, 329.  
 Goschen, George Joachim, '07, 330.  
 Goschen, Sir William Edward, '08, 308.  
 Gottschall, Rudolf von, '09, 308.  
 Grades For Cotton, '08, 308.  
 Graduate School of Agriculture, '08, 308; '09, 308.  
 Graft Prosecutions, '09, 308.  
 Graham, Sir William, '07, 330.  
 Granberry, John Cowper, '07, 330.  
 Grand River Bridge, '09, 308.  
 Grau, Maurice, '07, 330.  
 Graves, John Temple, '08, 308.  
 Grayson, Victor, '07, 331.  
 Great Britain, '07, 331; '08, 308; '09, 308.  
 Greece, '07, 347; '08, 322; '09, 326.  
 Greek Catholic Churches, '07, 349; '08, 323; '09, 329.  
 Green, James Gilchrist, '09, 329.  
 Green Bug, '09, 329.  
 Greenland, '07, 349; '08, 323; '09, 330.  
 Greenwood, Frederick, '09, 330.  
 Greer, David Hummell, '08, 323.  
 Gregory, Edward John, '09, 330.  
 Grenada, '08, 323; '09, 330.  
 Grey, Albert Henry George, '07, 349.  
 Grieg, Edvard Hagerup, '07, 350.  
 Griscom, Lloyd Carpenter, '07, 350.  
 Gross, Charles, '09, 330.  
 Grousset, Paschal, '09, 330.  
 Grow, Galusha Aaron, '07, 350.  
 Gruyer, François, '09, 330.  
 Guadeloupe, '07, 350; '08, 323; '09, 330.  
 Gualagnay River Bridge, '09, 331.  
 Guam, '07, 351; '08, 324.  
 Guarantee of Deposits, '08, 324; '09, 331.  
 Guatemala, '07, 351; '08, 324; '09, 331.  
 Guggenheim, Simon, '07, 352.  
 Guiana, '07, 352; '08, 325; '09, 331.  
 Guild, Curtis, Jr., '07, 352.  
 Guinea, French, '07, 353; '08, 325; '09, 331.  
 Gunnery, '07, 352.  
 Gunpowder, '07, 352; '08, 325; '09, 332.  
 Guns, Naval, '07, 352.  
 Gunter, Archibald Clavering, '07, 353.  
 Gustaf V., '07, 353.  
 Gymnastics, '08, 325; '09, 332.  
 Gypsy Moth, '07, 353; '08, 325.  
 Gyroscope, '07, 353; '09, 332.

- Haakon VII, '07, 354.  
 Hadley, Arthur Twining, '07, 354.  
 Hadley, Herbert Spencer, '08, 326.  
 Hæmoglobin, '09, 332.  
 Hafid, Mulai, '08, 326.  
 Hague Conference, '07, 355; '08, 326; '09, 332.  
 Haines, Sir Frederick Paul, '09, 332.  
 Haitti, '07, 359; '08, 326; '09, 332.  
 Haldane, Richard Burton, '07, 359.  
 Halderman, John A., '08, 327.  
 Hale, Edward Everett, '09, 333.  
 Halévy, Ludovic, '08, 327.  
 Hall, Asaph, '07, 360.  
 Hall, Charles Cuthbert, '08, 327.  
 Hall, John Dennin, '09, 334.  
 Hall, Sir John, '07, 360.  
 Hall, Owen, '07, 360.  
 Halle, Ernst von, '09, 334.  
 Halley's Comet, '07, 360; '09, 334.  
 Halstead, Murat, '08, 328.  
 Hamilton, Alexander, '07, 360.  
 Hamilton, David James, '09, 334.  
 Hamilton College, '09, 334.  
 Hampton Normal and Agricultural Institute, '09, 334.  
 Hamy, Theodore Jules Ernest, '08, 328.  
 Hanford, Ben, '08, 328.  
 Hankin, St. John Emile Claverling, '09, 334.  
 Hanlon, Edward, '08, 328.  
 Hansborough, Henry Clay, '07, 360.  
 Hansen, Emile Christian, '09, 334.  
 Harbors, '07, 360; '08, 328; '09, 335.  
 Harden, Maximilian, '07, 360; '08, 328.  
 Hardie, James Keir, '07, 360.  
 Hare, William Hobart, '09, 336.  
 Harkness, Albert, '07, 361.  
 Harmon, Judson, '08, 328.  
 Harriman, Edward Henry, '07, 361; '09, 336.  
 Harriman Investigation, '08, 328.  
 Harrington, Bernard James, '07, 361.  
 Harrington, Charles, '08, 328.  
 Harris, Joel Chandler, '08, 328.  
 Harris, William Alexander, '09, 338.  
 Harris, William Torrey, '09, 338.  
 Harrison, Alfred H., '07, 361.  
 Hartel, Wilhelm von, '07, 361.  
 Harvard University, '07, 361; '08, 329; '09, 339.  
 Haskell, Charles Nathaniel, '08, 329.  
 Haswell, Charles Haynes, '07, 362.  
 Hatton, Joseph, '07, 362.  
 Hausrath, Adolf, '09, 339.  
 Havemeyer, Henry Osborne, '07, 363.  
 Haverhill, Mass., '09, 339.  
 Hawkins, Sir Henry, '07, 366.  
 Hawaii, '07, 363; '08, 329; '09, 339.  
 Hay, '07, 366; '08, 332; '09, 342.  
 Hayashi, Tadasu, Viscount, '07, 366.  
 Hays, William Shakespeare, '07, 366.  
 Haywood, W. D., '07, 367.  
 Hazeltine, Mayo Williamson, '09, 342.  
 Headlam, Walter George, '08, 332.  
 Hearst, William Randolph, '07, 367; '08, 332.  
 Heart, Massage of, '07, 367.  
 Heart, Reanimation of, '09, 342.  
 Hebert, Antoine Auguste Ernest, '08, 332.  
 Hedin, Sven Anders, '07, 367; '08, 332.  
 Hellprin, Angelo, '07, 367.  
 Helms, George Lewis, '07, 367.  
 Hellum, '07, 367; '08, 332.  
 Helper, Hinton Rowan, '09, 343.  
 Hemenway, James Alexander, '07, 367.  
 Henderson, Ettie (Lewis), '09, 343.  
 Hendrick, Thomas Augustine, '09, 343.  
 Heney, Francis Joseph, '07, 368.  
 Henry, Victor, '07, 368.  
 Hepburn Law, '07, 368; '08, 332.  
 Heusler Magnetic Alloys, '07, 368.  
 Hey, Julius, '09, 343.  
 Heyburn, Weldon Brinton, '07, 368.  
 Hibbert, Sir John Tomlinson, '08, 332.  
 High-Pressure Fire System, '09, 343.  
 High Temperature Measurements, '07, 368.  
 Hill, David Jayne, '07, 368; '08, 332.  
 Hilprecht, Hermann Vollrat, '07, 368.  
 Himalaya Mountains, '09, 343.  
 Hiscox, Gardner Dexter, '08, 332.  
 Hlgen, Thomas L., '08, 332.  
 Historical Association, '07, 369; '08, 333; '09, 343.  
 Hitchcock, Ethan Allen, '09, 344.  
 Hitchcock, Frank Harris, '08, 333; '09, 344.  
 Hockey, '07, 369; '08, 333.  
 Hodges, George, '07, 369.  
 Hoe, Robert, '09, 344.  
 Hoffmann, Hans, '09, 344.  
 Hoffman, Richard, '09, 344.  
 Hofmeyer, J. H., '09, 345.  
 Hog Cholera, '07, 369; '08, 333.  
 Hoga, '08, 333.  
 Holabird, Samuel Beckley, '07, 369.  
 Holder, Sir Frederick William, '09, 345.  
 Holland, '07, 369; '08, 333; '09, 345.  
 Holle, Ludwig von, '09, 345.  
 Holmes, Mary Jane, '07, 369.  
 Holstein, Friedrich von, '09, 345.  
 Homer, Louise Dilworth (Beatty), '09, 345.  
 Homer, Sidney, '09, 345.  
 Honduras, '07, 369; '08, 333; '09, 345.  
 Honduras, British, '07, 370; '08, 334; '09, 347.  
 Hongkong, '07, 370; '08, 334; '09, 347.  
 Hookworm Disease, '09, 347.  
 Hopkins, Albert J., '07, 371.  
 Hopkins, Henry, '08, 335.  
 Hops, '07, 371; '08, 335; '09, 347.  
 Hornby, James John, '09, 348.  
 Horse Breeding, '07, 372.  
 Horseracing, '08, 335.  
 Horses, '08, 335.  
 Horsley, Alfred, '07, 372.  
 Horstmann, Ignatius Frederick, '08, 335.  
 Horticulture, '07, 372; '08, 335; '09, 348.  
 Hosley, Harry Hibbard, '08, 337.  
 Hosmer Harriet Goodhue, '08, 337.  
 Hospitals, '07, 374; '08, 337; '09, 350.  
 Hough, Alfred Lacey, '08, 338.  
 Hough, George Washington, '09, 351.  
 House Fly, '09, 351.  
 Houston, David F., '08, 338.  
 Howard, (George) Bronson, '08, 338.  
 Howard, Joseph Jr., '08, 338.  
 Howard, Oliver Otis, '09, 351.  
 Howard, William Lee, '07, 375.  
 Howard University, '09, 351.  
 Howe, William Wirt, '09, 352.  
 Howland, Alfred Cornelius, '09, 352.  
 Hubschmann, Johann, Heinrich, '08, 338.  
 Hudson - Fulton Centenary, '09, 352.  
 Hudson Memorial Bridge, '09, 352.  
 Huffcut, Ernest William, '07, 375.  
 Hughes, Charles Evans, '07, 375; '08, 338.  
 Hughes, Charles James, Jr., '09, 352.  
 Hughes, David Charles, '09, 352.  
 Hughes, Robert Patterson, '09, 352.  
 Hugues, Clovis, '07, 375.  
 Hunting, '07, 375.  
 Huntington, William Reed, '09, 352.  
 Huntley, Elias De Witt, '09, 353.  
 Hunton, Eppa, '08, 338.  
 Hutchinson, John Wallace, '08, 339.  
 Huysmans, Joris Karl, '07, 375.  
 Hydrogen, '09, 353.  
 Hygiene, '07, 376; '08, 339; '09, 353.  
 Ice Age, '08, 339.  
 Iceboating, '07, 376.  
 Ice Hockey, '07, 376; '08, 339.  
 Iceland, '07, 377; '08, 339; '09, 353.  
 Ice Yachting, '08, 339; '09, 353.  
 Idaho, '07, 377; '08, 339; '09, 354.  
 Ido, '08, 341.  
 Iglesias, Miguel, '09, 355.  
 Ignatieff, Nikolai Pavlovitch, '08, 341.  
 I-K'Uang, Prince Ching, '07, 379.  
 Illinois, '07, 379; '08, 341; '09, 355.  
 Illinois-Mississippi Canal, '07, 382.  
 Illinois, University of, '07, 382; '08, 344; '09, 359.  
 Imber, Naphthali Herz, '09, 359.  
 Immigration, '07, 382; '08, 344; '09, 359.  
 Immigration Commission, '09, 361.  
 Incandescent Lamps, '08, 346.  
 Incinerators, '09, 361.  
 Independent Catholic Church in the United States, '07, 385.  
 Indeterminate Sentence, '07, 385.  
 India, British, '07, 385; '08, 346; '09, 361.  
 India, French, '07, 392.  
 India, Portuguese, '07, 396; '08, 353; '09, 367.  
 Indiana, '07, 393; '08, 353; '09, 367.  
 Indiana University, '07, 395; '08, 356; '09, 370.  
 Indian Education, '08, 356; '09, 370.  
 Indians, '07, 395; '08, 356; '09, 370.  
 Indian Territory, '07, 396.  
 Indo-China, French, '07, 396; '08, 357; '09, 371.  
 Indo-Scythian Language, or Tokharic, '08, 357.

- Induction Motor, '09, 371.  
 Industrial Arbitration and Conciliation, '07, 396; '08, 357; '09, 371.  
 Industrial Insurance, '07, 397.  
 Industrial Peace, Foundation for the Promotion of, '07, 398.  
 Industrial Workers of the World, '07, 398.  
 Infantry, '07, 398; '08, 357.  
 Infra Red Radiation, '07, 398.  
 Ingalls, Charles Russell, '08, 357.  
 Ingersoll, Edward Payson, '07, 398.  
 Ingram, John Kells, '07, 398.  
 Initiative and Referendum, '08, 357; '09, 371.  
 Injunctions, '08, 358; '09, 371.  
 Inland Waterways, '07, 398; '08, 360.  
 Inouye, Hikaru, '08, 360.  
 Insanity, '07, 399; '08, 360; '09, 372.  
 Insects, '08, 361; '09, 372.  
 Insects and the Propagation of Disease, '07, 399; '08, 361; '09, 373.  
 Institute of Agriculture, '08, 361; '09, 374.  
 Insurance, '07, 400; '08, 361; '09, 374.  
 Insurance, Industrial, '07, 402.  
 Internal Revenue, '08, 362; '09, 375.  
 Internal Waterways, '09, 375.  
 International Arbitration, '08, 362; '09, 375.  
 International Bureau of American Republics, '07, 402.  
 International Congress of Americanists, '08, 365.  
 International Fisheries Congress, '08, 365.  
 International Highway Congress, '08, 365.  
 International Institute of Agriculture, '08, 365.  
 International Language, '08, 365.  
 International Livestock Exhibition, '08, 365.  
 International Peace Conference, '09, 375.  
 International Road Conference, '08, 365.  
 International Seismological Association, '08, 365.  
 International School of Peace, '09, 375.  
 International Sunday School Association, '07, 402.  
 Interparliamentary Union, '08, 365.  
 Interstate Commerce Commission, '08, 365; '09, 375.  
 Ionium, '07, 402.  
 Iowa, '07, 402; '08, 385; '09, 375.  
 Iowa, State University of, '08, 367; '09, 377.  
 Iowa, University of, '07, 403.  
 Ireland, '09, 377.  
 Ireland, Church of, '07, 405.  
 Iron and Steel, '07, 405; '08, 367; '09, 377.  
 Irrigation, '07, 408; '08, 372; '09, 379.  
 Isthmian Canal Zone, '08, 373; '09, 381.  
 Italian Earthquake, '08, 373.  
 Italian Somaliland, '07, 410; '08, 373; '09, 381.  
 Italy, '07, 411; '08, 373; '09, 381.  
 Ito (Hirobumi) Prince, '09, 387.  
 Ivins, William Mills, '07, 416.  
 Ivory Coast, '07, 416; '08, 377; '09, 387.  
 Jackson, Henry, '08, 377.  
 Jackson, Samuel McCartney, '07, 416.  
 Jackson, Sheldon, '09, 388.  
 Jaime, Don, '09, 388.  
 Jamaica, '07, 416; '08, 377; '09, 388.  
 James, Daniel Willis, '07, 418.  
 Jamestown Ter - Centennial Exposition, '07, 418.  
 Jannaris, Anthony, '09, 388.  
 Janssen, Peter, '08, 377.  
 Janssen, Pierre Jules Cesar, '07, 420.  
 Japan, '07, 420; '08, 377; '09, 388.  
 Japanese Question, '07, 430.  
 Java, '07, 431; '08, 384; '09, 394.  
 Jeanes, (Miss) Anna T., '07, 431.  
 Jerome, William Travers, '07, 431.  
 Jesup, Morris Ketchum, '08, 384.  
 Jewett, Sarah Orne, '09, 395.  
 Jewett, Sophie, '09, 395.  
 Jewish Colonization Association, '07, 431.  
 Jews, '07, 431; '08, 385; '09, 395.  
 Joachim, Joseph, '07, 433.  
 Johns Hopkins University, '07, 434; '08, 385; '09, 397.  
 Johnson, John, '07, 434.  
 Johnson, John A., '07, 434; '08, 386; '09, 397.  
 Johnson, Martin Nelson, '09, 397.  
 Johnson, Samuel William, '09, 398.  
 Johnson, Tom Loftin, '07, 434; '08, 386.  
 Johnson, William Allen, '09, 398.  
 Johnston, Joseph Forney, '07, 435.  
 Johore, '07, 435; '08, 386; '09, 398.  
 Joly de Lotbinière, Sir Henry Gustave, '08, 386.  
 Jones, Sir Alfred Lewis, '09, 398.  
 Jones, James Kimbrough, '08, 386.  
 Jones, John William, '09, 398.  
 Jones, Joseph Russell, '09, 398.  
 Jones, Leonard Augustus, '09, 398.  
 Jones, Wesley L., '09, 398.  
 Jones, William, '09, 398.  
 Jovian Asteroids, '08, 386.  
 Judson, Harry Pratt, '07, 435.  
 Julian, Rudolph, '07, 435.  
 Jupiter, '07, 435; '08, 386; '09, 399.  
 Justl, Ferdinand, '07, 435.  
 Juvenile Courts, '07, 435; '08, 386; '09, 399.  
 Juvenile Delinquents, '08, 387; '09, 400.  
 Kaiser Wilhelm Canal, '09, 400.  
 Kaiser Wilhelm's Land, '07, 435.  
 Kala-Amar, '07, 435.  
 Kamerun, '07, 435; '08, 388; '09, 400.  
 Kamerun, Mount, '09, 400.  
 Kamphausen, Adolf, '09, 400.  
 Kanko, Kentaro, Baron, '07, 436.  
 Kansas, '07, 436; '08, 389; '09, 400.  
 Kansas, University of, '07, 438; '08, 391; '09, 402.  
 Karsten, Hermann, '08, 391.  
 Kaufmann, Richard von, '08, 391.  
 Kautz, Albert, '07, 438.  
 Kean, John, '07, 438.  
 Kearney, Dennis, '07, 438.  
 Kedah, '08, 391; '09, 402.  
 Keefe, Daniel J., '08, 392.  
 Keffr Fungli, '09, 403.  
 Kelantan and Tringanu, '08, 392; '09, 403.  
 Kelle, Johann von, '09, 403.  
 Kelly, Edmond, '09, 403.  
 Kelvin, William Thomson, '07, 439.  
 Kemys, Edward, '07, 439.  
 Kennedy, Chas. Rann, '08, 392.  
 Kennedy, John Stewart, '09, 403.  
 Kenny, Patrick L., '09, 404.  
 Kentucky, '07, 439; '08, 392; '09, 404.  
 Kerens, Richard C., '09, 406.  
 Kern, John Worth, '08, 395.  
 Kho-Sam, '07, 442.  
 Kiamil Pasha, '08, 395.  
 Kiao-Chau, or Kiao-Chow, '07, 442; '08, 395; '09, 406.  
 Kidder, Benjamin Harrison, '09, 406.  
 Kiehlhorn, Lorenz Franz, '08, 396.  
 King, James Marcus, '07, 442.  
 King, William Frederick, '09, 406.  
 Kingston, Charles Cameron, '08, 396.  
 Kirkus, William, '07, 442.  
 Kites, '08, 396.  
 Kittredge, Alfred Beard, '07, 443.  
 Knapp, William Ireland, '08, 396.  
 Knight, Joseph, '07, 443.  
 Knowles, Sir James, '08, 396.  
 Knox, Philander Chase, '08, 396; '09, 406.  
 Kocher, Emil Theodor, '09, 407.  
 Kongo, '07, 443; '08, 396.  
 Korea, '07, 443; '08, 396; '09, 407.  
 Kossuth, Francis, '07, 445.  
 Kowloon, '07, 445.  
 Kretschmer, Edmund, '08, 398.  
 Kruehl, Gustav, '07, 445.  
 Kuroki, Ite, '07, 445.  
 Kwang-Chow-Wan, '07, 445; '08, 398; '09, 408.  
 Kwang-Hsu, '08, 398.  
 Kwantung, '07, 445; '08, 399; '09, 408.  
 Labor, American Federation of, '07, 446; '08, 399; '09, 408.  
 Labor Arbitration, '07, 446.  
 Labor Exchanges, '07, 447.  
 Labor Legislation, '08, 400; '09, 409.  
 Labuan, '07, 447; '08, 400; '09, 410.  
 Lacrosse, '07, 447; '08, 400; '09, 410.  
 Lactic Acid Therapy, '09, 410.  
 Lactone, '07, 447.  
 Ladrone Islands, '07, 447; '08, 401; '09, 410.  
 Lafayette College, '07, 447; '08, 401; '09, 411.  
 Laffan, William M., '09, 411.  
 La Follette, Robert Marion, '08, 401.  
 Lagerlöf, Selma, '09, 411.  
 Lagos, '07, 448.  
 Lahm, Frank P., '08, 401.  
 Lake Champlain Centenary, '09, 411.  
 Lake Mohonk Conference, '09, 411.  
 Lakes to Gulf Deep Waterway, '07, 448.  
 Lambeth Conference, '08, 401.  
 Lamoreux, Silas Wright, '09, 411.  
 Lamsdorff, Vladimir Nicolai-evitch, '07, 448.  
 Landelle, Charles, '08, 401.  
 Lander, Edward, '07, 448.  
 Land Frauds, '07, 448.  
 Landis, Kenesaw Mountain, '07, 448.  
 Lands, Arid, '08, 401.  
 Lands, Public, '07, 448; '08, 401; '09, 411.  
 Lane, Elinor (Macartney), '09, 414.

- Lang, Benjamin Johnson, '09, 414.  
 Lang, John Marshall, '09, 414.  
 Langdon, William H., '07, 448.  
 Language, '08, 402.  
 Laos, '07, 449; '08, 402; '09, 414.  
 L'apparent, Albert Auguste Cochon de, '08, 402.  
 L'Arronge, Adolf, '08, 402.  
 Lassar, Oskar, '07, 449.  
 Latimer, Asbury Churchwell, '07, 449; '08, 402.  
 Latter Day Saints, '07, 449.  
 Launitz, Vladimir Von Der, '07, 449.  
 Laurie, Simon Somerville, '09, 415.  
 Laveran, Charles Louis Adolphe, '07, 449.  
 Lawn Tennis, '07, 449; '08, 403; '09, 415.  
 Lawson, Thomas William, '07, 450.  
 Laymen's Missionary Movement, '09, 415.  
 Lea, Charles Henry, '09, 415.  
 Leach, Smith S., '09, 416.  
 Lead, '07, 450; '08, 403; '09, 416.  
 Leather, '07, 450; '08, 404; '09, 416.  
 Leavitt, John McDowell, '09, 417.  
 Lecbrin, '08, 404.  
 Lecot, Victor Lucien Sulpice, Cardinal, '08, 404.  
 Lee-Hamilton, Eugene, '07, 451.  
 Lee, Leslie Alexander, '08, 405.  
 Lee, Stephen Dill, '08, 405.  
 Leeward Islands, '07, 451; '08, 405; '09, 417.  
 Lehigh University, '08, 405; '09, 417.  
 Leibling, Sally, '09, 418.  
 Leland Stanford, Jr., University, '07, 452; '08, 405; '09, 418.  
 Lemly, Samuel Conrad, '09, 418.  
 Lemolnes Diamond Process, '08, 405.  
 Leopold II, '09, 418.  
 Le Plongeon, Augustus, '08, 405.  
 Leprosy, '07, 452; '08, 405; '09, 419.  
 Leroy, James A., '09, 420.  
 Lesbos or Mitylene, '07, 452.  
 Leslie, Preston Hopkins, '07, 452.  
 Leydig, Franz von, '08, 406.  
 Liao-Tung, '07, 452.  
 Liberia, '07, 452; '08, 406; '09, 420.  
 Library Association, American, '07, 453; '08, 407; '09, 420.  
 Library of Congress, '07, 453; '08, 407; '09, 421.  
 Lie, Jonas Lauritz Edemil, '08, 407.  
 Liebreich, Oskar, '08, 408.  
 Life Insurance, '08, 408.  
 Light, '08, 408.  
 Lighthouses, '08, 408; '09, 421.  
 Lighthouses and Other Aids to Navigation, '07, 454; '08, 408.  
 Lightning Arrester, '07, 455.  
 Lillencron, Detlev, Baron von, '09, 422.  
 Lilley, George Leavens, '08, 409; '09, 422.  
 Limitation of Actions, '07, 455.  
 Lincoln Centenary, '09, 422.  
 Lincoln Memorial Highway, '08, 409.  
 Lindsay, Thomas Bond, '09, 422.  
 Lindsay, William, '09, 423.  
 Lindsey, Benjamin Barr, '08, 409.  
 Linevitch, Nicholas Petrovitch, '08, 409.  
 Lippmann, Gabriel, '08, 409.  
 Liquid Crystal, '09, 423.  
 Liquors, Fermented and Distilled, '07, 455; '08, 409; '09, 423.  
 Literature, English and American, '07, 457; '08, 412; '09, 425.  
 Literature, French, '09, 432.  
 Literature, German, '09, 432.  
 Livestock Exposition, '08, 417; '09, 432.  
 Lloyd-George, David, '08, 417.  
 Loan and Trust Companies, '07, 464; '08, 417; '09, 432.  
 Locomotives, '07, 465; '08, 418.  
 Lodge, George Cabot, '09, 432.  
 Loeb, Louis, '09, 432.  
 Loewy, Maurice, '07, 465.  
 Logan, Olive, '09, 432.  
 Loisy, Alfred, '07, 466.  
 Lombroso, Cesare, '09, 432.  
 London, Jack, '07, 466.  
 Long, Chester I., '07, 466.  
 Long, William Joseph, '07, 466.  
 Loomis, Charles Battell, '07, 466.  
 Loomis, Henry Patterson, '07, 466.  
 Lorimer, William, '09, 433.  
 Loring, Charles Harding, '07, 466.  
 Los Angeles, Cal., '09, 433.  
 Lottery, '07, 467.  
 Loud, Eugene F., '08, 418.  
 Louisiana, '07, 467; '08, 418; '09, 433.  
 Lovett, Robert Scott, '09, 434.  
 Lowell, Abbott Lawrence, '08, 420; '09, 434.  
 Lucca, '08, 420.  
 Luchaire, André, '08, 421.  
 Luiz, Philippe, Duke of Braganza and Crown Prince of Portugal, '08, 421.  
 Lumber, '08, 421; '09, 435.  
 Lupus, '07, 469.  
 Lurton, Horace Harmon, '09, 435.  
 Lutheran Church, '07, 469; '08, 421; '09, 435.  
 Luther League of America, '07, 469; '08, 421; '09, 436.  
 Luxemburg, '07, 469; '08, 421; '09, 436.  
 Lyne, Joseph Leicester, '08, 422.  
 McAllister, David, '07, 470.  
 Macao, '07, 470; '09, 436.  
 Macarthur, James, '09, 436.  
 McCarren, Patrick Henry, '09, 437.  
 McClellan, George Brinton, '07, 470; '08, 422.  
 McClintock, Sir Francis Leopold, '07, 470.  
 McCloskey, William George, '09, 437.  
 McLouth, Lewis, '09, 438.  
 McClung, Lee, '09, 437.  
 McClure, Alexander Kelly, '09, 437.  
 McComas, Louis Emory, '07, 470.  
 MacConnell, Charles Jenkins, '09, 437.  
 McCook, Edward Moody, '09, 437.  
 McCosh, Andrew J., '08, 422.  
 McCreary, James Bennett, '07, 471.  
 McCumber, Porter James, '07, 471.  
 MacDonald, James Wilson Alexander, '08, 422.  
 MacDowell, Edward Alexander, '08, 422.  
 Macedonia, '08, 423.  
 McEnery, Samuel Douglas, '07, 471.  
 Macfadyen, Allan, '07, 471.  
 McGillicuddy, Daniel F., '08, 424.  
 McGill University, '07, 471; '08, 424; '09, 437.  
 Machine Guns, '07, 471; '08, 425.  
 MacIver, Henry Ronald Douglas, '07, 471.  
 McKim, Charles Follen, '09, 438.  
 Mack, Norman Edward, '08, 425.  
 Mackay, Donald Sage, '08, 425.  
 McKenna, Reginald, '08, 425.  
 Maclaren, Ian, '07, 472.  
 McLaurin, Anselm Joseph, '09, 438.  
 MacLaurin, Richard C., '09, 438.  
 Maclean, Sir Harry Aubrey, '07, 470.  
 McQuaid, Bernard John, '09, 438.  
 McSweeney, Miles Benjamin, '09, 438.  
 MacVeagh, Franklin, '09, 438.  
 Madagascar, '07, 472; '08, 425; '09, 438.  
 Magnetic Alloys, '07, 473.  
 Magnetism, '07, 472.  
 Magnetism, Terrestrial, '07, 473.  
 Magoon, Charles E., '07, 473.  
 Magruder, Julia, '07, 473.  
 Malignan, Albert, '08, 426.  
 Maine, '07, 473; '08, 426; '09, 439.  
 Maine, University of, '09, 441.  
 Maize, '07, 474.  
 Malaria, '07, 474; '08, 428.  
 Malay States, '09, 442.  
 Malet, Edwin Baldwin, '08, 428.  
 Mallory, Stephen Russell, '07, 474.  
 Malot, Hector Henri, '07, 474.  
 Malta, '07, 474; '08, 428; '09, 443.  
 Malt Liquors, '07, 475.  
 Manchuria, '07, 475; '08, 428; '09, 443.  
 Manganese, '07, 476; '08, 429.  
 Manhattan Bridge, '09, 443.  
 Manitoba, '07, 476; '08, 430; '09, 443.  
 Manning, William F., '08, 430.  
 Manns, Sir August Friedrich, '07, 477.  
 Mansfield, Richard, '07, 477.  
 Manuel II, '08, 430.  
 Manures and Manuring, '07, 478.  
 Marathons, '09, 443.  
 Marchesi, Salvatore, Cavaliere de Castrone, Marchese della Rajata, '08, 430.  
 Marconi, Guglielmo, '09, 443.  
 Marianne Islands, '07, 478.  
 Marine Biological Laboratories and Stations, '08, 430.  
 Marine Gas Engines, '09, 444.  
 Marine Laboratories, '09, 444.  
 Marquette University, '07, 478.  
 Marriage, '08, 430.  
 Mars, '07, 478; '08, 430; '09, 444.  
 Marshall Islands, '07, 478; '08, 430.  
 Martens, Frederick Frommhold von, '09, 444.  
 Martin, Sir Theodore, '09, 444.  
 Martinique, '07, 484; '08, 430; '09, 444.  
 Martin, Thomas Staples, '07, 478.

- Marty, Georges, '08, 431.  
 Marvin, Ross Gilmore, '09, 444.  
 Maryland, '07, 478; '08, 431; '09, 445.  
 Mary, Queen of Hanover, '07, 478.  
 Mascart, Eleuthère Elis Nicholas, '08, 432.  
 Maso, Bartolomey Marquez, '07, 480.  
 Mason, Andrew, '09, 446.  
 Mason, Otis Tufton, '08, 433.  
 Mason, William, '08, 433.  
 Massachusetts, '07, 481; '08, 433; '09, 445.  
 Massachusetts Institute of Technology, '07, 483; '08, 436; '09, 449.  
 Massey, Gerald, '07, 484.  
 Masson, David, '07, 484.  
 Masters, Maxwell Tylden, '07, 484.  
 Mathew, Sir James Charles, '08, 436.  
 Mathews, William, '09, 449.  
 Matteucci, Vittorio Raffaele, '09, 449.  
 Maurer, Henry, '09, 449.  
 Mauritania, '07, 484; '08, 436; '09, 449.  
 Mauritius, '07, 485; '08, 436; '09, 449.  
 Mayo, Amory Dwight, '07, 485.  
 Mayotte and Dependencies, '07, 485; '08, 437; '09, 450.  
 Meat and Meat Inspection, '07, 485; '08, 437; '09, 450.  
 Medical Progress in 1907, '07, 486.  
 Medical Progress in 1908, '08, 438.  
 Medical Progress in 1909, '09, 451.  
 Medicines, Patent, '07, 486.  
 Mendeléeff, Dmitri Ivanovich, '07, 486.  
 Mendelism, '09, 451.  
 Mendés, Catulle, '09, 451.  
 Mennonites, '07, 487; '09, 452.  
 Menocal, Aniceto García, '08, 438.  
 Mercury, '07, 487; '08, 438.  
 Meredith, George, '09, 452.  
 Merrell, John Porter, '07, 487.  
 Merriam, Greenlief A., '08, 439.  
 Merrill, George Edmands, '08, 439.  
 Merriman, John Xavier, '08, 439.  
 Merry Del Val, Rafael, '07, 487.  
 Merx, Adelbert, '09, 453.  
 Meserole, Jeremiah Vanderbilt, '08, 439.  
 Mesopotamia, '09, 453.  
 Messina, '09, 455.  
 Messina Earthquake, '08, 439.  
 Metallurgy, '07, 488; '09, 455.  
 Metals, '07, 488; '09, 455.  
 Metcalf, Victor Howard, '07, 488.  
 Metcalf, William, '09, 455.  
 Metchnikoff, Ilya, '08, 439.  
 Meteoric Falls, '09, 455.  
 Meteorology, '07, 488; '08, 439; '09, 455.  
 Meteors and Meteor Train, '07, 489.  
 Methodist Episcopal Church, '07, 489; '08, 440; '09, 456.  
 Methodist Episcopal Church, South, '07, 490; '08, 441; '09, 457.  
 Methodist Protestant Church, '07, 490; '08, 441; '09, 457.  
 Metrology, '08, 441.  
 Metropolitan Life Tower, '08, 441.  
 Metropolitan Museum of Art, '07, 491; '08, 441; '09, 457.  
 Mexico, '07, 491; '08, 442; '09, 457.  
 Meyer, George von Lenkerke, '07, 493; '09, 459.  
 Michael Nikolayevitch, '09, 460.  
 Michel, François Emile, '09, 460.  
 Michelson, Albert Abraham, '07, 493.  
 Michelson, Peter Christian, '07, 494.  
 Michigan, '07, 494; '08, 445; '09, 460.  
 Michigan, University of, '07, 496; '08, 447; '09, 462.  
 Mikklesen, Ejnar, '07, 497.  
 Military Ballooning, '08, 447.  
 Military Progress, '07, 497; '08, 447; '09, 462.  
 Militia, '07, 499; '08, 449; '09, 464.  
 Milk, '07, 500; '08, 451.  
 Milk, Dried and Condensed, '07, 501.  
 Milking Machine, '07, 501.  
 Milligan, Robert Wiley, '09, 466.  
 Mills, Job Smith, '09, 467.  
 Mills, Samuel Myers, '07, 501.  
 Milton, William Hall, '08, 457.  
 Milukoff, Paul Nikolaevitch, '07, 501.  
 Mine Accidents, '07, 501.  
 Mineralogy, '07, 501; '08, 451; '09, 467.  
 Mineral Production of the United States, '07, 501; '08, 452; '09, 467.  
 Mining, '07, 504.  
 Minnesota, '07, 504; '08, 454; '09, 469.  
 Minnesota, University of, '07, 506; '08, 456; '09, 471.  
 Minor Planets, '07, 506; '08, 456.  
 Missionary Association, '07, 506; '08, 456; '09, 471.  
 Missions, Protestant Foreign, '07, 506; '08, 456; '09, 471.  
 Mississippi, '07, 508; '08, 457; '09, 472.  
 Mississippi River Bridge, '09, 473.  
 Missouri, '07, 509; '08, 459; '09, 473.  
 Missouri, University of, '07, 512; '08, 461.  
 Mitchell, Donald Grant, '08, 461.  
 Mitchell, Henry, '09, 475.  
 Mitchell, Samuel Chiles, '08, 462.  
 Mobius, Karl August, '08, 462.  
 Modernism, '08, 462; '09, 475.  
 Modjeska, Helena, '09, 475.  
 Mohammed V, '09, 476.  
 Mohmands, '08, 462.  
 Mohr, Charles, '07, 512.  
 Moissan, Henri, '07, 512.  
 Monaco, Prince of, '07, 512.  
 Mond, Ludwig, '09, 476.  
 Money, Hernando de Soto, '07, 512.  
 Monorail Railway, '07, 512.  
 Monson, Sir Edmund John, '09, 476.  
 Montana, '07, 512; '08, 462; '09, 477.  
 Montenegro, '07, 514; '08, 464; '09, 478.  
 Montgomery, George, '07, 515.  
 Montholon - Semonville, Madame Napoleon-Marie-Hélène Charlotte de, '07, 515.  
 Montserrat, '08, 464; '09, 479.  
 Moon, '07, 515.  
 Moor, Sir Ralph Denham Rayment, '09, 470.  
 Moore, John, '07, 515.  
 Moran, John B., '09, 479.  
 Moravians, '07, 515; '08, 464; '09, 479.  
 Morfill, William Richard, '09, 479.  
 Morgan, John Tyler, '07, 515.  
 Morganstern, Lina, (Bauer), '09, 479.  
 Mormons, '07, 515.  
 Morocco, '07, 515; '08, 465; '09, 480.  
 Morris, Sir Lewis, '07, 518.  
 Morris, Martin Ferdinand, '09, 482.  
 Morris, Nelson, '07, 518.  
 Morrison, William Ralls, '09, 482.  
 Morse, Charles W., '08, 467.  
 Mosquitoes, '07, 518.  
 Motor Boating, '09, 482.  
 Motor Boats, '08, 467.  
 Motor Cars, '08, 467.  
 Moulton, James Egan, '09, 482.  
 Moulton, Louise Chandler, '08, 467.  
 Mount Holyoke College, '07, 518; '08, 467.  
 Mount Wilson Solar Observatory, '08, 467.  
 Moyer, G. H., '07, 518.  
 Mozambique, '07, 518; '08, 467; '09, 483.  
 Muck, Karl, '07, 518.  
 Mulai Hanf, '08, 467.  
 Mules, '08, 467.  
 Municipal Baths, '07, 519.  
 Municipal Government, '07, 519; '08, 467; '09, 483.  
 Municipal League, National, '07, 520; '08, 468; '09, 486.  
 Municipal Ownership, '07, 520; '08, 469; '09, 486.  
 Municipal Research, Bureau of, '07, 521; '08, 469.  
 Munn, Orson Desaix, '07, 521.  
 Muravieff, Nikolai Vladimír, '08, 469.  
 Murphy, Charles Francis, '07, 522.  
 Murphy, Francis, '07, 522.  
 Murray, David Christie, '07, 522.  
 Museum of Fine Arts, '07, 522; '08, 469; '09, 487.  
 Museum of Natural History, '07, 522.  
 Music, '07, 522; '08, 469; '09, 487.  
 Muzaffar-Ed-Din, '07, 528.  
 Mythology, Indian, '08, 474.  
 Nagana, '07, 528.  
 Nagel, Charles, '09, 493.  
 Natal, '07, 528; '08, 474; '09, 493.  
 National Academy of Design, '07, 530; '08, 475; '09, 494.  
 National Academy of Sciences, '07, 530; '09, 494.  
 National Association of State Universities, '07, 530.  
 National Banks, '07, 530; '08, 475; '09, 494.  
 National Child Labor Committee, '07, 531.  
 National Civic Federation, '07, 531; '08, 476; '09, 495.  
 National Civil Service Reform League, '09, 495.  
 National Conference of Charities and Corrections, '09, 495.  
 National Conservation Commission, '08, 477; '09, 495.  
 National Educational Association, '07, 532.  
 National Forests, '09, 495.  
 National Geographic Society, '07, 532.  
 National Monetary Commission, '09, 495.

- National Municipal League, '07, 532.  
 National Museum, U. S., '07, 532; '08, 477; '09, 496.  
 National Resources, '08, 478.  
 National Sculpture Society, '07, 532.  
 National Society for the Promotion of Industrial Education, '07, 533.  
 National Woman's Christian Temperance Union, '07, 532.  
 Natural Gas, '07, 532; '08, 478; '09, 496.  
 Natural History, American Museum of, '07, 533; '08, 478; '09, 496.  
 Natural Resources, '09, 496.  
 Naturalization, '07, 533.  
 Naval Progress, '08, 478; '09, 496.  
 Navarro, José Francisco de, '09, 500.  
 Navies, Development of, '07, 533.  
 Nebraska, '07, 534; '08, 479; '09, 500.  
 Nebraska, University of, '07, 536; '08, 481; '09, 501.  
 Necrology, '07, 536; '08, 481; '09, 501.  
 Negative Catalysis, '09, 509.  
 Negro in America, '07, 545.  
 Nehring, Wladislaw, '09, 508.  
 Nelson, Henry Loomis, '08, 486.  
 Nelson, Knute, '07, 546.  
 Neon, '09, 510.  
 Netherlands, The, '07, 546; '08, 486; '09, 510.  
 Neubauer, Adolf, '07, 549.  
 Neumayer, Georg von, '09, 512.  
 Nevada, '07, 549; '08, 489; '09, 512.  
 New Brunswick, '07, 550; '08, 480; '09, 513.  
 New Caledonia, '07, 550; '08, 480; '09, 513.  
 Newcastle, Right Rev. Arthur Thomas Lloyd, '07, 550.  
 Newcomb, Simon, '09, 513.  
 Newell, Stamford, '07, 551.  
 Newfoundland, '07, 551; '08, 491; '09, 514.  
 New Guinea, '09, 515.  
 New Guinea, or Papua, '07, 553; '09, 515.  
 New Guinea, British, '07, 553; '08, 492.  
 New Guinea, German, '07, 553; '08, 492.  
 New Hampshire, '07, 553; '08, 492; '09, 515.  
 New Hebrides, '07, 554; '08, 494; '09, 516.  
 New Jersey, '07, 555; '08, 494; '09, 516.  
 New Jerusalem, Church of the, '07, 557.  
 Newlands, Francis Griffith, '07, 557.  
 New Mexico, '07, 557; '08, 497; '09, 519.  
 Newport Plan, '07, 558.  
 New Orleans, Ont., '08, 498; '09, 520.  
 New South Wales, '07, 559; '08, 498; '09, 520.  
 Newton, Alfred, '07, 559.  
 New York, '07, 560; '08, 498; '09, 521.  
 New York Academy of Sciences, '07, 555; '08, 503; '09, 525.  
 New York College of the City of, '08, 503; '09, 524.  
 New York Barge Canal, '09, 525.  
 New York Canals, '07, 565.  
 New York Public Library, '07, 565; '08, 503; '09, 525.  
 New York School of Philanthropy, '09, 525.  
 New York University, '07, 565; '08, 504; '09, 525.  
 New York Zoological Society, '07, 566; '08, 504; '09, 525.  
 New Zealand, '07, 566; '08, 504; '09, 525.  
 Niagara Falls, '08, 506.  
 Nicaragua, '07, 568; '08, 506; '09, 527.  
 Nichols, Ernest Fox, '09, 528.  
 Nichols Medal, '08, 507.  
 Nickel, '08, 507.  
 Niger, Military Territory of the, '09, 528.  
 Nigeria, '07, 569.  
 Night Riders, '07, 569.  
 Nigra, Count Constantino, '07, 569.  
 Nile Bridges, '09, 528.  
 Nitrification, '07, 569.  
 Nitrogen, '08, 507; '09, 528.  
 Nitrogen Compound, '09, 528.  
 Nitrogen of Soda, '09, 528.  
 Nixon, George S., '07, 569.  
 Noailles, Emmanuel, Marquis de, '09, 528.  
 Nobel Prizes, '07, 569; '08, 507; '09, 528.  
 Nodzu, Michitsura, Marquis, '08, 508.  
 Nomination Reform, '09, 529.  
 North Carolina, '07, 570; '08, 508; '09, 529.  
 North Dakota, '07, 572; '08, 510; '09, 530.  
 Northern Nigeria, '07, 574; '08, 511; '09, 531.  
 Northwestern University, '07, 574; '08, 511; '09, 531.  
 Norton, Charles Eliot, '08, 511.  
 Norton, Charles Ledyard, '09, 532.  
 Norway, '07, 574; '08, 512; '09, 532.  
 Nova Scotia, '07, 577; '08, 514; '09, 534.  
 Novelli, Ermeste, '07, 577.  
 Novi Bazar, '08, 515.  
 Noyes, Crosby Stuart, '08, 515.  
 Nutrition Studies, '08, 515; '09, 534.  
 Nyassaland Protectorate, '07, 577; '08, 515; '09, 534.  
 Oats, '08, 515; '09, 535.  
 Oberlin College, '07, 578; '08, 516; '09, 535.  
 Obesity, '09, 535.  
 O'Brien, Thomas J., '07, 579.  
 Oceania, French, '07, 578; '09, 535.  
 O'Connor, Sir Nicholas Roderick, '08, 516.  
 Odd Fellows, Independent Order of, '07, 579.  
 Ogden, Rollo, '07, 579.  
 Ohio, '07, 579; '08, 516; '09, 536.  
 Ohio State University, '07, 581; '09, 538.  
 Oklahoma, '07, 582; '08, 519; '09, 538.  
 Olcott, Henry Steel, '07, 585.  
 Old-Age Pensions, '07, 585; '08, 522; '09, 541.  
 Olympic Games, '08, 523.  
 Oman, '07, 586; '08, 524; '09, 542.  
 Ontario, '07, 586; '08, 524; '09, 542.  
 Opera, '08, 524; '09, 542.  
 Opium, '08, 524; '09, 542.  
 Opium Commission, International, '09, 543.  
 Opioidin, '07, 587.  
 Opioidotherapy, '07, 587.  
 Optics, '07, 587.  
 Orange River Colony, '07, 587; '08, 525; '09, 543.  
 Orchard, Harry, '07, 588.  
 Orchard Fruits, '07, 588.  
 Orday, John Morse, '09, 544.  
 Oregon, '07, 588; '08, 525; '09, 544.  
 Organic Chemistry, '08, 527; '09, 544.  
 Orleans, Duke of, '07, 590.  
 Ornithology, '07, 590; '08, 527; '09, 546.  
 Oscar II, '07, 591.  
 Osgood, Henry Brown, '09, 547.  
 Osler, William, '07, 591.  
 Osmotic Pressure Measurement, '09, 547.  
 Osthoff, Hermann, '09, 547.  
 Ostwald, Wilhelm, '09, 547.  
 Osteopathy, '07, 591.  
 Otis, Elwell Stephen, '09, 547.  
 Outhwaite, Joseph H., '07, 591.  
 Overman, Lee Slater, '07, 592.  
 Owen, Robert Latham, '07, 592.  
 Oxone, '09, 547.  
 Oxyacetylene Torch, '09, 547.  
 Oxygen, '09, 547.  
 Oxygen Inhalations & Muscular Exercise, '08, 527.  
 Oxyrhynchus, Excavations at, '08, 528; '09, 547.  
 Packard, William Alfred, '09, 547.  
 Paderewski, Ignace Jan, '07, 592.  
 Pageants, Historic, '07, 592; '09, 547.  
 Page, Carroll Smalley, '08, 528.  
 Painting, '07, 592; '08, 528; '09, 547.  
 Paleontology, '07, 594.  
 Palma, Thomas Estrada, '08, 529.  
 Palmer, Horatio Richmond, '07, 594.  
 Palmer, William Jackson, '09, 549.  
 Panama, '07, 594; '08, 530; '09, 549.  
 Panama Canal, '07, 595; '08, 531; '09, 550.  
 Pan-American Conference, '09, 553.  
 Pan Anglican Conference, '08, 535.  
 Paper, '07, 597; '08, 535; '09, 553.  
 Papua, '07, 598; '08, 536; '09, 555.  
 Papyrus, Discoveries of, '08, 537; '09, 555.  
 Para Cota, '09, 555.  
 Paraguay, '07, 599; '08, 537; '09, 555.  
 Pardo, William O'Brien, '09, 556.  
 Parks and Playgrounds, '07, 599.  
 Parloa, Maria, '09, 556.  
 Parsons, Frank, '08, 538.  
 Parsons, Herbert, '07, 600.  
 Party Designations, '09, 556.  
 Pastor, Antonio, '08, 538.  
 Patent Medicines, '07, 600.  
 Patent Office, '07, 600.  
 Patents, '08, 538; '09, 556.  
 Patrick, Albert T., '07, 600.  
 Patriotic Societies, '07, 600; '08, 538; '09, 556.  
 Patterson, Raymond Albert, '09, 557.  
 Paulsen, Friedrich, '08, 539.  
 Pavements and Roads, '07, 601; '08, 539; '09, 557.  
 Pavloff, Vladimir, '07, 602.  
 Payne, Sereno Elisha, '09, 557.  
 Paynter, Thomas H., '07, 602.  
 Peabody Museum, '07, 602.  
 Peabody Museum of Harvard University, '08, 540; '09, 557.  
 Peary, Robert Edwin, '09, 557.  
 Peat, '09, 558.  
 Peckham, Rufus Wheeler, '09, 558.

- Pellagra, '08, 540; '09, 558.  
 Pelham, Henry Francis, '07, 602.  
 Penang, '08, 540; '09, 559.  
 Pennsylvania, '07, 603; '08, 540; '09, 559.  
 Pennsylvania, University of, '07, 606; '08, 543; '09, 564.  
 Penology, '07, 606; '08, 543; '09, 554.  
 Penrhyn, George Sholto Douglas-Pennant, Second Baron, '07, 608.  
 Pensions, '07, 608; '09, 565.  
 Peonage, '07, 608.  
 People's Institute, '07, 608.  
 Perkin, Sir Wm. Henry, '07, 608.  
 Perkins, George Clement, '07, 609.  
 Perkins Medal, '08, 544.  
 Pernter, Josef Maria, '08, 544.  
 Perogen, '09, 565.  
 Perrier, Edmond, '08, 544.  
 Perry, David, '08, 544.  
 Persia, '07, 609; '08, 544; '09, 565.  
 Peru, '07, 612; '08, 547; '09, 568.  
 Petkoff, Dimitri, '07, 614.  
 Petrography, '07, 614.  
 Petroleum, '07, 614; '08, 548; '09, 570.  
 Petrology, '09, 571.  
 Petrosino, Joseph, '09, 571.  
 Pettibone, G. W., '07, 614.  
 Pettigrew, James Bell, '08, 549.  
 Pettus, Edmund Winston, '07, 615.  
 Pfeiderer, Otto, '08, 549.  
 Philanthropy, Schools of, '07, 615.  
 Philippine Islands, '07, 615; '08, 550; '09, 571.  
 Philological Association, '07, 622; '08, 555; '09, 576.  
 Philology, '07, 622; '08, 555; '09, 576.  
 Philosophical Association, American, '08, 559; '09, 578.  
 Philosophical Society, '07, 629; '08, 559; '09, 579.  
 Philosophical Society, Western, '09, 579.  
 Philophy, '07, 629; '08, 560; '09, 579.  
 Phloridzin, '09, 582.  
 Phosphate, '09, 582.  
 Phosphate Deposits, '08, 562.  
 Phosphorescence, '07, 631.  
 Phosphoric Acid, '09, 582.  
 Photography, '07, 631; '08, 562; '09, 582.  
 Phototelegraphy, '07, 632.  
 Phototherapy, '07, 632; '08, 562; '09, 583.  
 Physical Chemistry, '07, 632.  
 Physical Education, '09, 584.  
 Physics, '07, 632; '08, 562; '09, 584.  
 Piles, Samuel Henry, '07, 637.  
 Pinchot, Gifford, '08, 566; '09, 586.  
 Pinkerton, Robert A., '07, 637.  
 Pischel, Richard, '08, 566.  
 Pittsburg, '09, 586.  
 Pittsburg Survey, '08, 566.  
 Pittsburg, University of, '09, 586.  
 Plague, '07, 638; '08, 566; '09, 586.  
 Planets and Planetoids, '07, 638; '09, 586.  
 Planets, '08, 567.  
 Plant Breeding, '07, 638; '08, 567; '09, 586.  
 Plant Diseases, '09, 567.  
 Plant Nutrition, '08, 567.  
 Plant Pathology, '08, 567; '09, 586.  
 Plant Physiology, '07, 638; '08, 567; '09, 586.  
 Platinum, '07, 638; '08, 567; '09, 586.  
 Playground Association, '09, 587.  
 Playgrounds, '07, 638; '08, 567; '09, 587.  
 Plener, Ignatz von, '08, 568.  
 Plympton, George Washington, '07, 638.  
 Pobledonostzeff, Constantine Petrovitch, '07, 638.  
 Poe Centenary, '09, 587.  
 Poe, John Prentiss, '09, 587.  
 Poiré, Emmanuel, '09, 587.  
 Polar Research, '07, 639; '08, 568; '09, 587.  
 Polish Catholics, '07, 639.  
 Political and Social Science, '07, 639; '08, 569; '09, 589.  
 Political Economy, '07, 639; '08, 570; '09, 589.  
 Polo, '07, 641; '08, 571; '09, 590.  
 Pope, Albert Augustus, '09, 590.  
 Population, Congestion of, '08, 571.  
 Porter, Benjamin Curtis, '08, 572.  
 Portland, '09, 590.  
 Portland, Wm. John Caven-dish Bentinck-Scott, Fifth Duke of, '07, 641.  
 Portland, Oregon, '09, 590.  
 Porto Rico, '07, 642; '08, 572; '09, 590.  
 Portugal, '07, 645; '08, 574; '09, 593.  
 Portuguese Africa, '09, 595.  
 Portuguese East Africa, '07, 647; '08, 576; '09, 595.  
 Portuguese Guinea, '07, 648; '09, 596.  
 Positive Rays, '08, 576.  
 Post, George Edward, '09, 596.  
 Post, Régis Henri, '08, 576.  
 Postal Savings Banks, '07, 648; '08, 576; '09, 596.  
 Posts, '07, 649.  
 Potash Salts, '09, 597.  
 Potatoes, '07, 649; '08, 577; '09, 597.  
 Potter, Henry Codman, '08, 577.  
 Potts, John, '07, 650.  
 Poultry, '08, 578; '09, 597.  
 Pouren, Jan Janoff, '08, 578.  
 Power, Electric Transmission of, '07, 650; '09, 597.  
 Powers, Caleb, '08, 597.  
 Pragmatism, '08, 578; '09, 597.  
 Prang, Louis, '09, 597.  
 Pratt Institute, '09, 597.  
 Precious Stones, '07, 650.  
 Presbyterian Church in the United States, '07, 651; '08, 578; '09, 598.  
 Presbyterian Church in the United States of America, '07, 650; '08, 578; '09, 598.  
 Presbyterians, Reformed, '07, 651; '09, 599.  
 Preserving Fruits, '07, 651.  
 Presidential Campaign, '08, 579.  
 Prices, '08, 594; '09, 599.  
 Price, Thomas, '09, 599.  
 Primaries, Direct, '08, 595.  
 Prime, Samuel Thornton Kemeys, '07, 651.  
 Prime, Wendell, '07, 651.  
 Primitive Methodist Church of America, '07, 651.  
 Prince Edward Island, '07, 652; '08, 596; '09, 599.  
 Princeton University, '07, 652; '08, 596; '09, 600.  
 Prison Association, '07, 652.  
 Prison Association of New York, '07, 652.  
 Pritchard, Jeter Connelly, '07, 652.  
 Private Banks, '07, 653; '08, 596; '09, 600.  
 Privetti, Giulio Marchese, '08, 597.  
 Proctor, Redfield, '08, 597.  
 Professional Schools, '07, 653; '08, 597; '09, 600.  
 Prohibition, '07, 654; '08, 597; '09, 600.  
 Propagation of the Faith, '07, 656.  
 Protestants, '07, 656; '09, 602.  
 Protestant Episcopal Church, '07, 656; '08, 599; '09, 602.  
 Prout, Ebenezer, '09, 603.  
 Psychical Research, '07, 657; '08, 600; '09, 603.  
 Psychological Association, '07, 657; '08, 601; '09, 604.  
 Psychology, '07, 657; '08, 601; '09, 604.  
 Psychotherapy, '08, 604; '09, 608.  
 Public Health, '07, 663; '08, 604; '09, 608.  
 Public Health Association, American, '07, 663; '08, 604; '09, 608.  
 Public Lands, '07, 663; '08, 605; '09, 608.  
 Public Service Commissions, '07, 666.  
 Public Schools, '09, 608.  
 Public Utilities Commissions, '08, 605.  
 Puccini, Giacomo, '07, 666.  
 Pugh, James Lawrence, '07, 666.  
 Pugilism, '09, 608.  
 Pulliam, Henry Clay, '09, 608.  
 Pumping Machinery, '09, 609.  
 Purdue University, '09, 609.  
 Pure Food and Drugs Act, '07, 666.  
 Pure Food Laws, '08, 605.  
 Pure Food Legislation, '09, 609.  
 Pyrocyanase, '08, 605.  
 Quakers, '07, 666; '08, 605; '09, 609.  
 Quebec, '08, 605; '09, 609.  
 Quebec Bridge, '09, 609.  
 Queensland, '07, 666; '08, 605; '09, 610.  
 Quilter, Harry, '07, 667.  
 Rabies, '08, 605; '09, 610.  
 Racing, '07, 667; '08, 605; '09, 610.  
 Racquets and Court Tennis, '07, 668; '08, 606; '09, 610.  
 Radioactivity, '09, 611.  
 Radiochemistry, '08, 606; '09, 611.  
 Radiotherapy, '08, 606.  
 Radium and Radioactivity, '07, 668; '08, 606.  
 Radium Salts, '08, 606.  
 Rae, Charles Whiteside, '08, 606.  
 Railroads, '07, 668; '08, 606; '09, 611.  
 Railway Mail Service, '07, 678.  
 Raissuli, '07, 678.  
 Raines, John, '09, 614.  
 Ramée, Louise de la, '08, 610.  
 Ranc, Arthur, '08, 611.  
 Randall, James Ryder, '08, 611.  
 Randolph Macon System of Colleges and Academies, '07, 678; '08, 611.  
 Rare Earths, '07, 678.  
 Rats as Carriers of Disease, '07, 678.  
 Raum, Green Berry, '09, 614.  
 Rayner, Isidor, '07, 678.  
 Rebates and Rebating, '07, 679.  
 Recall, '09, 614.  
 Receiverships, '08, 611.  
 Reclamation Service, '07, 679; '09, 614.  
 Red Cloud, '09, 614.  
 Red Cross, '07, 679; '08, 611; '09, 615.  
 Rees, John Krom, '07, 679.  
 Referendum, '09, 615.  
 Reform Bureau, '09, 615.  
 Reformed Church in America (Dutch), '07, 679; '08, 612; '09, 616.

Reformed Church in the United States (German), '07, 680; '08, 612; '09, 616.  
 Reformed Churches, Alliance of, '07, 679; '08, 612; '09, 616.  
 Reformed Episcopal Church, '07, 680; '08, 613; '09, 616.  
 Reformed Presbyterians, '07, 680; '08, 613; '09, 616.  
 Refuse Disposal, '07, 680.  
 Regulini, '07, 680.  
 Reid, Sir John Watt, '09, 617.  
 Reid, Sir Robert Gillespie, '08, 613.  
 Reinforced Concrete, '07, 680; '09, 617.  
 Relativity Theory, '08, 613.  
 Remington, Frederic, '09, 617.  
 Reservoirs, '07, 680; '08, 613; '09, 617.  
 Rest Strahlen, '07, 680.  
 Réunion, '07, 680; '08, 613; '09, 617.  
 Reuterdahl, Henry, '08, 614.  
 Reyer, Ernest, '09, 618.  
 Reyes, Rafael, '07, 681; '09, 618.  
 Rhode Island, '07, 681; '08, 614; '09, 618.  
 Rhodesia, '07, 683; '08, 615; '09, 619.  
 Rice, '07, 683; '08, 615; '09, 620.  
 Richard, François Marie Benjamin, Cardinal, '08, 616.  
 Richards, John Kelvey, '09, 620.  
 Richardson, Henry Brown, '09, 620.  
 Richmond, Charles Alexander, '09, 620.  
 Riddle, John Wallace, '07, 684.  
 Rigg, James Harrison, '09, 620.  
 Rimsky-Korsakoff, Nicolas Andrejevitch, '08, 616.  
 Ripon, George Frederick Samuel Robinson, Marquis of, '09, 620.  
 River and Harbor Improvements, '07, 684; '08, 616.  
 River Improvement, '09, 620.  
 Roads, '07, 685; '08, 617; '09, 620.  
 Roche, James Jeffrey, '08, 617.  
 Rochester, William Beatty, '09, 620.  
 Rockwell, Charles Henry, '08, 617.  
 Roehrig, Frederick Louis Otto, '08, 617.  
 Roentgen Rays, '07, 687; '08, 618; '09, 623.  
 Roentgen Rays in Medicine, '07, 687.  
 Rogers, Henry Huttleston, '09, 621.  
 Roggenbach, Baron Franz von, '07, 685.  
 Roloff, Carlos, '07, 685.  
 Roman Catholic Church, '07, 685; '08, 617; '09, 621.  
 Roosa, Daniel Bennett St. John, '08, 618.  
 Roosevelt, Geo. Washington, '07, 688.  
 Roosevelt, Theodore, '07, 688; '08, 618.  
 Root, Elihu, '07, 689; '08, 620; '09, 623.  
 Root, Oren, '07, 690.  
 Rose, Thomas Ellwood, '07, 690.  
 Rose, Uriah M., '07, 690.  
 Ross, Edmund G., '07, 690.  
 Rosse, Sir Lawrence Parsons, Fourth Earl of, '08, 620.  
 Rottenburg, Franz, von, '07, 690.  
 Routh, Edward John, '07, 690.  
 Rouvier, Maurice, '07, 690.

Rowell, George Presbury, '08, 620.  
 Rowing, '07, 690; '08, 620; '09, 623.  
 Rowlands, David, '07, 691.  
 Roshdestvensky, Ziniv Petrovitch, '09, 624.  
 Rubber, '07, 691; '08, 621; '09, 624.  
 Rubini, Antonio Starraba, '08, 621.  
 Ruger, Thomas Howard, '07, 692.  
 Rum, '08, 622; '09, 625.  
 Rumania, '07, 692; '08, 622; '09, 625.  
 Rumelia, Eastern, '08, 623.  
 Russell, Sir William Howard, '07, 693.  
 Russell Sage Foundation, '07, 694; '08, 623; '09, 625.  
 Russia, '07, 694; '08, 623; '09, 625.  
 Russian Orthodox Church, '07, 701; '08, 632; '09, 634.  
 Rutgers College, '07, 701; '09, 634.  
 Rutherford, Ernest, '07, 701; '08, 632.  
 Rutherford, William Gunion, '07, 701.  
 Ryan, Thomas Fortune, '07, 701.  
 Rye, '07, 701; '08, 633; '09, 634.  
 Sackville, Lionel Sackville West Baron, '08, 633.  
 Safonoff, Wassil Iljitsch, '07, 702.  
 Sage Foundation, '08, 633; '09, 635.  
 Saint Andrew, Brotherhood of, '07, 702; '08, 633; '09, 635.  
 Saint-Gaudens, Augustus, '07, 702.  
 St. Helena, '07, 703; '08, 633; '09, 635.  
 St. Kitts, '08, 633; '09, 635.  
 St. Lucia, '08, 633; '09, 635.  
 Saint Pierre and Miquelon, '07, 703; '08, 633; '09, 635.  
 St. Thomé or San Thomé and Principe, '09, 635.  
 St. Vincent, '08, 634; '09, 636.  
 Saloni, Marquis Kinmochi, '07, 703.  
 Sajodin, '07, 703.  
 Sakhalin, '07, 703; '08, 634; '09, 636.  
 Salt, '07, 704.  
 Salting, George, '09, 636.  
 Salton Sea, '07, 704; '08, 634.  
 Salton Pass, '09, 636.  
 Salts, Aqueous Solution of, '09, 636.  
 Salvador, '07, 704; '08, 634; '09, 636.  
 Salvation Army, '07, 705; '08, 635; '09, 637.  
 Samoa, '08, 635; '09, 637.  
 Samos, '07, 705; '08, 635; '09, 637.  
 Samuels, Samuel, '08, 636.  
 Sancha y Hervás, '09, 637.  
 Sanderson, John H., '09, 637.  
 Sanford, Edmund Clark, '09, 637.  
 Sanitation, '07, 705; '08, 636; '09, 638.  
 Sankey, Ira David, '08, 637.  
 Santo Domingo, '07, 706; '08, 637; '09, 638.  
 Sao Thomé, '07, 707; '09, 639.  
 Saracco, Giuseppe, '07, 707.  
 Sarafoff, Boris, '07, 707.  
 Sarasate y Navascues, Pablo Martin Meliton de, '08, 638.  
 Sarawak, '07, 707; '08, 638; '09, 639.  
 Sardou, Victorien, '08, 638.  
 Sargent, Frank Pierce, '08, 639.  
 Saskatchewan, '07, 707; '08, 639; '09, 639.  
 Satterlee, Walter, '08, 639.

Saturn, '07, 707; '08, 639; '09, 639.  
 Saunders, Howard, '07, 707.  
 Savings Banks, '07, 707; '08, 639; '09, 639.  
 Saxton, Rufus, '08, 641.  
 Scenic and Historic Preservation Society, American, '07, 709; '08, 641; '09, 641.  
 Scheel, Fritz, '07, 709.  
 Schools, '08, 641; '09, 641.  
 Schools of Agriculture, '08, 641; '09, 641.  
 Schools, Forest, '09, 641.  
 Schools, Professional, '07, 709; '08, 641; '09, 641.  
 School Savings Banks, '09, 641.  
 Schrader, Eberhard, '08, 641.  
 Schrötter, Leopold von Christall, '08, 641.  
 Schultz, Alwin, '09, 641.  
 Schurz, Carl, '07, 710.  
 Sciences, National Academy of, '07, 710; '08, 641; '09, 642.  
 Scotland, '09, 642.  
 Scotland, Church of, '07, 710; '08, 642.  
 Scotland, United Free Church of, '07, 710; '08, 642.  
 Scott, Guy Charles, '09, 642.  
 Scott, James Brown, '07, 711.  
 Scott, Nathan Day, '07, 711.  
 Sculpture, '07, 711; '08, 642; '09, 642.  
 Sculpture Society, National, '07, 712; '08, 643; '09, 642.  
 Seattle Canal, '09, 642.  
 See, Sir John, '07, 712.  
 Seeley, Harry Govier, '09, 642.  
 Seismology, '07, 712; '08, 643; '09, 643.  
 Selby, William Court Gully, Viscount, '09, 643.  
 Selfridge, Thomas E., '08, 643.  
 Sellers, Coleman, '07, 712.  
 Senden-Bilbran, Gustav E. O. E. von, '09, 643.  
 Senegal, '07, 712; '08, 643; '09, 643.  
 Senn, Nicholas, '08, 643.  
 Sepp, Johannes Nepomuk, '09, 643.  
 Sergiev, Ivan Iljitch, '09, 643.  
 Serum Therapy, '07, 712; '08, 643; '09, 643.  
 Serbia, '07, 713; '08, 644; '09, 644.  
 Sewage Purification, '07, 714; '08, 645; '09, 645.  
 Sewerage, '07, 715; '08, 646; '09, 645.  
 Seymour, Thomas Day, '07, 715.  
 Shackleton, E. H., '07, 715; '09, 646.  
 Shakers, '07, 715.  
 Shanley, John, '09, 646.  
 Sharp, William, '07, 715.  
 Sheep, '07, 715; '08, 646; '09, 646.  
 Shipbuilding, '07, 715; '08, 646; '09, 646.  
 Shirlaw, Walter, '09, 648.  
 Shively, Benjamin F., '09, 648.  
 Shoes, '07, 717; '08, 648; '09, 648.  
 Shonts, Theodore Perry, '07, 717.  
 Shooting, '07, 717; '08, 648; '09, 648.  
 Short Ballot, '09, 649.  
 Shradly, George Frederick, '07, 717.  
 Shuvaloff, Count Paul, '08, 648.  
 Siam, '07, 718; '08, 648; '09, 649.  
 Sierra Leone, '07, 719; '08, 649; '09, 650.  
 Silk, '07, 720; '08, 650; '09, 650.

Silundrum, '09, 681.  
 Silver, '07, 721; '08, 650; '09, 651.  
 Simplified Spelling, '07, 721.  
 Simpson Tunnel, '07, 723.  
 Sinclair, Upton, '07, 723.  
 Singapore, '08, 652; '09, 652.  
 Single Phase Electric Railways, '08, 652.  
 Skating, '07, 723; '08, 652; '09, 652.  
 Skiing, '07, 723.  
 Skinner, Charles Montgomery, '07, 724.  
 Skyscrapers, '07, 724; '08, 652.  
 Slaughtering, '07, 724; '08, 652.  
 Sleeping Sickness, '07, 724; '08, 652; '09, 652.  
 Sloan, Samuel, '07, 724.  
 Small Arms, '07, 724; '08, 652.  
 Smallpox and Vaccination, '07, 724; '08, 652; '09, 652.  
 Smillie, James David, '09, 653.  
 Smith, Charles Emory, '08, 653.  
 Smith, Charles Stewart, '09, 653.  
 Smith, Clement Lawrence, '09, 653.  
 Smith, George Otis, '07, 725.  
 Smith, Herbert Knox, '07, 725.  
 Smith, Hoke, '07, 725.  
 Smith, John Walter, '08, 653.  
 Smith, Walter Chalmers, '08, 653.  
 Smith, W. Saumarez, '09, 653.  
 Smith, William Alden, '07, 725.  
 Smith, William Thayer, '09, 653.  
 Smith College, '07, 725; '08, 653; '09, 653.  
 Smithsonian Institution, '07, 725; '08, 653; '09, 653.  
 Smoke Prevention, '07, 725; '08, 654; '09, 654.  
 Smoot, Reed, '07, 726.  
 Smyth, Albert Henry, '07, 726.  
 Snow, Francis Huntington, '08, 654.  
 Socialism, '07, 726; '08, 654; '09, 654.  
 Social Science Association, American, '07, 727.  
 Social Service, American Institute of, '07, 727; '08, 655; '09, 656.  
 Society of American Artists, '07, 728.  
 Society of Agronomy, '07, 728.  
 Society of Chemical Industry, '08, 655.  
 Society of International Law, '09, 656.  
 Sociology, '07, 728; '08, 655; '09, 656.  
 Sociological Society, American, '07, 728; '08, 655.  
 Soils, '08, 656; '09, 657.  
 Solar System, '07, 729; '08, 657; '09, 658.  
 Solomon Islands, '07, 729; '08, 657; '09, 658.  
 Somaliland, '07, 729; '08, 657; '09, 658.  
 Sonnenthal, Adolf Ritter von, '09, 658.  
 Sorolla y Bastida, '09, 658.  
 South African Union, '08, 657.  
 South Africa, British, '09, 658.  
 South Arabia, '09, 660.  
 South Australia, '07, 729; '08, 657; '09, 660.  
 South Carolina, '07, 729; '08, 657; '09, 660.  
 South Dakota, '07, 731; '08, 659; '09, 661.

Southern Child Labor Conference, '09, 662.  
 Southern Nigeria, '07, 732; '08, 660; '09, 662.  
 Spain, '07, 732; '08, 660; '09, 663.  
 Sparta, Excavations in, '08, 662.  
 Spectroscopy, '07, 735.  
 Speed, John Gilmer, '09, 667.  
 Spelling Simplified, '07, 735.  
 Sperry, Charles Stillman, '08, 662.  
 Spelter, '08, 662; '09, 667.  
 Spiritualists' Association, '07, 735; '08, 663; '09, 667.  
 Spitzbergen, '07, 735; '08, 663.  
 Spofford, Ainsworth Rand, '08, 663.  
 Spooner, John Colt, '07, 735.  
 Spreckels, Claus, '08, 663.  
 Standard Oil, '07, 735; '08, 663; '09, 667.  
 Standard Time, '07, 739.  
 Stanley, Frederick Arthur, '08, 665.  
 Starin, John Henry, '09, 668.  
 Stars, '07, 739; '08, 665; '09, 669.  
 State Banks, '07, 739; '08, 665; '09, 669.  
 State Charity Conference, '09, 669.  
 States' Rights, '07, 739.  
 Statistical Association, '07, 740.  
 Steam Engine, '07, 740; '08, 665; '09, 669.  
 Steam Turbine, '07, 742; '08, 665; '09, 669.  
 Stedman, Edmund Clarence, '08, 666.  
 Steel, '09, 670.  
 Steffens, Joseph Lincoln, '07, 742.  
 Stein, M. A., '08, 667.  
 Steinschneider, Moritz, '07, 742.  
 Stellar Motion, '07, 743.  
 Stellar Evolution, '09, 670.  
 Stellar Spectra, '08, 667.  
 Stephenson, Isaac, '07, 743.  
 Sternburg, Baron Speck von, '07, 743; '08, 667.  
 Stevens, Durham White, '08, 667.  
 Stevens, Francis B., '08, 667.  
 Stewart Alexander Peter, '08, 667.  
 Stewart, John Walcott, '08, 667.  
 Stewart, William F., '08, 667.  
 Stewart, William Morris, '09, 670.  
 Stirling, James Hutchinson, '09, 670.  
 Stocker, Adolf, '09, 670.  
 Stock Exchange, '09, 670.  
 Stock Raising, '07, 743; '08, 667; '09, 670.  
 Stocks and Bonds, '08, 669.  
 Stoddard, Charles Warren, '09, 672.  
 Stoddart, James Henry, '07, 744.  
 Stoessel, Anatoly Mikailovich, '07, 744.  
 Stotes, Whitley, '09, 672.  
 Stolypin, Peter Arkazhevich, '07, 744.  
 Stone, William Joel, '07, 744.  
 Stone, William Leete, '08, 669.  
 Storage Battery, '07, 745; '08, 669; '09, 673.  
 Storer, Bellamy, '07, 745.  
 Story, Robert Henry, '07, 745.  
 Stovalne, '09, 674.  
 Straits Settlements, '07, 745; '08, 670; '09, 673.  
 Strachey, Sir Richard, '08, 670.  
 Straus, Oscar Solomon, '07, 746.

Street Cleaning, '07, 746; '08, 670.  
 Street Pavements, '07, 746; '08, 671.  
 Strikes and Lockouts, '07, 746; '08, 671; '09, 674.  
 Strobel, Edward Henry, '08, 672.  
 Strong, Edward Trask, '09, 678.  
 Sturgis, Russell, '09, 678.  
 Submarine Boats, '07, 750; '08, 673.  
 Submarine Cables, '07, 750.  
 Submarine Mines, '07, 751.  
 Subways, '08, 673; '09, 678.  
 Sucher, Josef, '08, 673.  
 Sudan, '07, 751; '08, 673; '09, 678.  
 Suez Canal, '07, 751; '08, 674; '09, 678.  
 Sugar, '7, 751; '08, 674; '09, 678.  
 Suicide, '07, 753.  
 Suleiman, Effendi, '09, 679.  
 Sully-Prudhomme, René François Armand, '07, 753.  
 Sulphate of Ammonia, '09, 679.  
 Sumatra, '07, 753; '08, 674; '09, 679.  
 Sun, '07, 753; '08, 675; '09, 679.  
 Sunday School Association, '07, 753.  
 Sunday School Union, American, '07, 753; '08, 675.  
 Sun Spots, '07, 753; '08, 675.  
 Surinam, '07, 753; '08, 675; '09, 679.  
 Susquehanna River Bridge, '09, 679.  
 Sutherland, George, '07, 753.  
 Svampa, Domenico, '07, 753.  
 Sven Hedin, '08, 675.  
 Swarthmore College, '07, 754; '08, 675; '09, 679.  
 Swayne, Charles, '07, 754.  
 Swaziland, '07, 754; '08, 675; '09, 679.  
 Sweden, '07, 754; '08, 675; '09, 679.  
 Swettenham, Sir James Alexander, '07, 755.  
 Swimming, '07, 755; '08, 677; '09, 682.  
 Swinburne, Algernon Charles, '09, 682.  
 Swinburne, William Thomas, '07, 756.  
 Swine, '08, 677; '09, 683.  
 Switzerland, '07, 756; '08, 677; '09, 683.  
 Synge, John Millington, '09, 685.  
 Syracuse University, '07, 757; '08, 680; '09, 685.  
 Syria and Palestine, Excavations in, '08, 680; '09, 685.  
 Tabb, John Bannister, '09, 685.  
 Taft, Charles P., '08, 680.  
 Taft, Wm. Howard, '07, 757; '08, 680; '09, 685.  
 Takahira, Kogoro, '07, 758.  
 Talcott, Alfred Bissell, '09, 686.  
 Tallafarro, James Piper, '07, 758.  
 Tall Buildings, '07, 758; '08, 681.  
 Tariff and Tariff Revision, '07, 750; '08, 681; '09, 686.  
 Tasmania, '07, 758; '08, 683; '09, 691.  
 Tatsu Maru Affair, '08, 683.  
 Tax Payers' League, '09, 691.  
 Taylor, Robert Love, '07, 759.  
 Tea, '08, 683.  
 Teachers' Salaries, '09, 691.  
 Technical Colleges, '07, 759.  
 Telegraphy, '07, 759; '08, 683; '09, 691.

- Telegraphy, Wireless, '08, 683; '09, 691.  
 Telephone, '07, 759; '08, 683.  
 Telephony, '09, 691.  
 Telephony, Wireless, '08, 684; '09, 691.  
 Temperature, '09, 691.  
 Tennessee, '07, 760; '08, 684; '09, 691.  
 Tetanus, '07, 762; '08, 686; '09, 693.  
 Tetrizzini, Luisa, '08, 686.  
 Texas, '07, 762; '08, 686; '09, 694.  
 Texas Fever, '08, 688.  
 Textile Manufacturing, '07, 764; '08, 688; '09, 696.  
 Thacher, John Boyd, '09, 697.  
 Thalassotherapy, '08, 689.  
 Theatre, '08, 690.  
 Theodor, Karl, '09, 697.  
 Theological Seminaries, '09, 697.  
 Theosophical Society, '07, 765; '08, 690; '09, 697.  
 Theuriot, André, '07, 765.  
 Thomas, Charles Mitchell, '08, 690.  
 Thomas, George C., '09, 697.  
 Thomsen, Julius, '09, 698.  
 Thompson, Francis, '07, 766.  
 Thomson, William, '07, 766.  
 Thomson, William Judah, '09, 698.  
 Thumann, Paul, '08, 690.  
 Thyresol, '09, 698.  
 Tiber Bridge, '09, 698.  
 Tibet, '07, 766; '08, 691; '09, 698.  
 Ticks, '08, 691.  
 Tiffany, Charles Comfort, '07, 776.  
 Tilford, Wesley Hunt, '09, 698.  
 Tilley, Benjamin Franklin, '07, 766.  
 Tilton, Theodore, '07, 767.  
 Timby, Theodore Ruggles, '09, 698.  
 Timor, '07, 767; '08, 690; '09, 698.  
 Tin, '07, 767; '08, 690; '09, 699.  
 Tobacco, '07, 767; '08, 691; '09, 699.  
 Togoland, '07, 768; '08, 691; '09, 700.  
 Tonga Islands, '07, 769; '08, 692; '09, 700.  
 Tongking, '07, 769; '08, 692; '09, 700.  
 Toth, Alexis G., '09, 700.  
 Torpedo, '07, 769; '08, 692.  
 Torpedo Boats, '07, 769.  
 Torpedo Boat Destroyer, '07, 769.  
 Tower, Charlemagne, '08, 692.  
 Trade Unions, '07, 769; '08, 692; '09, 700.  
 Transformers, '07, 772.  
 Transmission of Electric Power, '07, 772; '08, 694; '09, 702.  
 Transvaal, The, '07, 772; '08, 695; '09, 703.  
 Tringanu, '08, 696; '09, 704.  
 Trinidad, '07, 775; '08, 696.  
 Trinidad and Tobago, '09, 704.  
 Trinity College, '09, 704.  
 Triple Alliance, '07, 776.  
 Tropical Diseases, '07, 776.  
 Tropical Medicine, '08, 697; '09, 704.  
 Trust Companies, '07, 776; '08, 697.  
 Trusts, '07, 776; '08, 697; '09, 705.  
 Trypanosomes, '07, 780.  
 Trypanosomiasis, '08, 699.  
 Tsi-An, '08, 699.  
 Tsetse Fly, '07, 780; '09, 708.  
 Tuberculin, '07, 780; '08, 699; '09, 708.  
 Tuberculosis, '07, 781; '08, 700; '09, 708.  
 Tucker, Henry St. George, '07, 781.  
 Tucker, William Jewett, '07, 781.  
 Tufts, Frank Leo, '09, 709.  
 Tufts College, '09, 709.  
 Tunis, '07, 781; '08, 700; '09, 709.  
 Tunnels, '07, 783; '08, 701; '09, 710.  
 Turbine Engines, '07, 784.  
 Turfan, '07, 784; '08, 703; '09, 711.  
 Turkey, '07, 785; '08, 703; '09, 711.  
 Turks and Calcos Islands, '07, 790; '08, 711; '09, 717.  
 Turple, David, '09, 717.  
 Türr, Stephen, '08, 711.  
 Tuskegee Normal and Industrial Institute, '07, 790; '08, 711; '09, 717.  
 Tussol, '07, 790.  
 Tutuila, '07, 790; '08, 711.  
 Tweedmouth, Edward Marjoribanks, '09, 718.  
 Typhoid Fever, '07, 791; '08, 711; '09, 718.  
 Tyrrell, George, '09, 718.  
 Tyssen - Amherst, William Amherst, '09, 718.  
 Tze-Hsi or Tai-An, '08, 712.  
 Uchtritz, Kuno von, '08, 712.  
 Uganda Protectorate, '08, 712; '09, 719.  
 Ulrich, Charles Frederick, '08, 712.  
 Ultra Microscope, '07, 791.  
 Uncinariasis, '07, 791; '09, 719.  
 Underwood, Lucien Marcus, '07, 792.  
 Unemployment, '07, 792; '08, 713; '09, 719.  
 Union College, '09, 720.  
 Unitarians, '07, 792; '08, 714; '09, 720.  
 United Brethren in Christ, '07, 792; '08, 714; '09, 720.  
 United Evangelical Church, '07, 792; '08, 714; '09, 720.  
 United Presbyterian Church of North America, '07, 792; '715; '09, 720.  
 United Society of Christian Endeavor, '07, 793; '08, 715.  
 United States, '07, 793; '08, 715; '09, 720.  
 U. S. Military Academy, '07, 822; '08, 745; '09, 760.  
 U. S. National Museum, '07, 822; '09, 761.  
 U. S. Naval Academy, '07, 823; '08, 745; '09, 761.  
 Universalists, '07, 823; '08, 745; '09, 761.  
 Universal Time, '07, 823.  
 Universities, Amer. Assoc. of, '08, 745.  
 Universities and Colleges, '07, 823; '08, 745; '09, 761.  
 Upper Air, '08, 747.  
 Upper Senegal Niger, '07, 825; '08, 747; '09, 746.  
 Uruguay, '07, 825; '08, 825; '09, 764.  
 Utah, '07, 827; '08, 749; '09, 766.  
 Vaccination, '07, 828; '08, 750; '09, 767.  
 Vaccine Therapy, '07, 828.  
 Vacuum Tubes, '07, 828.  
 Vagrancy, '07, 828; '08, 750.  
 Valparaiso University, '09, 767.  
 Variable Stars, '08, 751.  
 Varnum, James M., '07, 828.  
 Vassar College, '07, 828; '08, 751; '09, 767.  
 Vaughan, Lawrence, J., '09, 767.  
 Venezuela, '07, 828; '08, 751; '09, 767.  
 Vermont, '07, 830; '08, 753; '09, 769.  
 Vesuvius, '07, 831.  
 Veterinary Science, '07, 831; '08, 755; '09, 770.  
 Viaducts, '07, 833; '08, 756.  
 Victoria, '07, 832; '08, 756; '09, 771.  
 Viélé, Herman Knickerbocker, '08, 756.  
 Villas, William Freeman, '08, 756.  
 Vinopyrin, '07, 833.  
 Virginia, '07, 833; '08, 756; '09, 771.  
 Virginia, University of, '07, 835; '08, 758; '09, 773.  
 Virgin Islands, '08, 758; '09, 773.  
 Vital Statistics, '07, 835; '08, 758; '09, 773.  
 Vitralin, '09, 774.  
 Vivisection, '07, 836; '08, 759; '09, 774.  
 Vladimír, '09, 774.  
 Vocational Training, '09, 774.  
 Volt, Carl von, '08, 759.  
 Volcanoes, '07, 836; '08, 759.  
 Volunteers of America, '07, 836; '09, 774.  
 Wage Earners' Compensation and Insurance, '09, 774.  
 Wake, '08, 759.  
 Walcott, Charles Doolittle, '07, 837.  
 Walden Inversion, '09, 774.  
 Wales, '09, 774.  
 Wales, Geo. Frederick Ernest Albert, '07, 837.  
 Walker, John Grimes, '07, 837.  
 Walker, Joseph Henry, '07, 837.  
 Walpole, Sir Spencer, '07, 837.  
 Ward, Seth, '09, 774.  
 Warington, Robert, '07, 837.  
 Warner, William, '07, 837.  
 Warren, Francis Emory, '07, 837.  
 Warren, Minton, '07, 837.  
 Washington, '07, 838; '08, 759; '09, 774.  
 Washington, City of, '08, 761.  
 Washington Academy of Sciences, '07, 839; '08, 761.  
 Washington, University of, '09, 776.  
 Water Purification, '07, 839; '08, 761; '09, 776.  
 Water Supply, '07, 840; '08, 761.  
 Water-Works, '07, 840; '08, 761; '09, 776.  
 Waterways, Internal, '09, 777.  
 Watson, John, '07, 841.  
 Watson, Thomas E., '08, 762.  
 Weather Forecasting, '07, 841.  
 Wei-Hai-Wei, '07, 841; '08, 762; '09, 778.  
 Well, Henri, '09, 778.  
 Wellesley College, '07, 841; '08, 762; '09, 778.  
 Wellman Polar Expedition, '07, 741.  
 Werder, Franz Wilhelm Bernhard von, '07, 841.  
 Werner, Reinhold von, '09, 778.  
 Wesleyan Methodist Connection, '07, 841; '08, 762; '09, 779.  
 Wesleyan University, '07, 842; '08, 762; '09, 779.  
 West Africa, '09, 779.  
 West Africa, French, '07, 842.  
 Western Australia, '07, 842; '08, 763; '09, 779.  
 Western Federation of Miners, '07, 842.  
 Western Reserve University, '07, 843; '08, 763; '09, 779.  
 West Virginia, '07, 843; '08, 763; '09, 779.

- Wetmore, George Peabody, '08, 764.  
 Wharton, Joseph, '09, 781.  
 Wheat, '07, 845; '08, 764; '09, 781.  
 Wheat Bran, '07, 846.  
 Wheelock, Joseph, '08, 765.  
 Whiskey, '07, 846; '08, 765; '09, 781.  
 Whiteaves, Joseph Frederick, '09, 781.  
 White, Stanford, '07, 846.  
 Whiteley, William, '07, 847.  
 Whiteway, Sir Wm. Valance, '08, 765.  
 Whittier, Charles Albert, '08, 765.  
 Whyte, William Pinkney, '07, 846; '08, 765.  
 Wickersham, George W., '09, 782.  
 Wiggins, Benjamin Lawton, '09, 782.  
 Wildenbruch, Ernest von, '09, 782.  
 Wilder, Alexander, '08, 765.  
 Wilhelmj, August Emil Daniel F., '08, 765.  
 Willamette River Bridge, '09, 782.  
 Willard, Josiah Flynt, '07, 846.  
 Willcox, Orlando Bolivar, '07, 846.  
 Willcox, William R., '07, 847.  
 Williams, Constant, '07, 847.  
 Williams, John Joseph, '07, 847.  
 Williams, John Sharp, '07, 847.  
 Williams College, '07, 847; '08, 765; '09, 782.  
 Willson, Augustus Everett, '07, 847.  
 Wilson, Arthur, '09, 782.  
 Wilson, Augusta Jane (Evans), '09, 782.  
 Wilson, James, '09, 782.  
 Windsor, William Augustus, '07, 847.  
 Windward Islands, '08, 766; '09, 782.  
 Wines, '07, 847; '08, 766; '09, 783.  
 Winslow, Cameron McRea, '07, 848.  
 Wint, Theodore J., '07, 848.  
 Winter Cholera, '08, 766.  
 Wireless Telegraphy, '07, 848; '08, 766; '09, 783.  
 Wireless Telephony, '07, 849; '08, 766.  
 Wisconsin, '07, 849; '08, 766; '09, 783.  
 Wisconsin, University of, '07, 852; '08, 768; '09, 785.  
 Wister, Annis Lee (Furness), '08, 768.  
 Withers, Robert Enoch, '07, 852.  
 Withrow, John Lindsay, '09, 785.  
 Woman's Christian Temperance Union, National, '07, 852; '08, 768.  
 Woman's College of Baltimore, '07, 852; '08, 768; '09, 785.  
 Woman Suffrage, '07, 852; '08, 769; '09, 785.  
 Women in Industry, '08, 770; '09, 786.  
 Women's Clubs, Gen'l. Federation of, '07, 853; '08, 771; '09, 787.  
 Woodrow, James, '07, 853.  
 Woodward, David A., '09, 787.  
 Wool, '07, 854; '08, 771; '09, 787.  
 Workingmen's Insurance, '07, 854.  
 Workmen's Compensation, '07, 854; '09, 787.  
 Wormeley, Katherine Prescott, '08, 771.  
 Worthington, George, '08, 771.  
 Worthington, Henry C., '09, 787.  
 Wrestling, '07, 854; '08, 771; '09, 787.  
 Wright, Carroll Davidson, '09, 787.  
 Wright, Charles Henry Hamilton, '09, 788.  
 Wright, John Henry, '08, 771.  
 Wright, Luke E., '08, 771.  
 Wright, Orville and Wilbur, '08, 771.  
 Wüllner, Adolf, '08, 772.  
 Wyckoff, Walter Augustus, '08, 772.  
 Wyllie, Sir William Hutt Curzon, '09, 788.  
 Wyoming, '07, 855; '08, 772; '09, 788.  
 Wu Ting-Fang, '07, 855.  
 Wyse, Lucien Napoleon Bonaparte, '09, 789.  
 X-Rays, '07, 856; '08, 773.  
 Yachting, '07, 856; '08, 773.  
 Yachting and Motorboating, '08, 789.  
 Yale University, '07, 856; '08, 773; '09, 789.  
 Yamamoto, Gombel, Baron Admiral, '07, 857.  
 Yellow Fever, '07, 857; '08, 774.  
 Yi Wan Yon, '09, 790.  
 Young, Charles Augustus, '08, 774.  
 Young, Ella (Flagg), '09, 790.  
 Young Men's Christian Association, '07, 857; '08, 774; '09, 790.  
 Young Turks, '08, 774.  
 Young Women's Christian Associations, Nat'l. Board of, '07, 857; '08, 774; '09, 790.  
 Yuan Shih-Kai, '09, 790.  
 Yukon, '07, 858.  
 Zalinski, Edmund Louis Gray, '09, 790.  
 Zanzibar, '07, 858; '08, 774; '09, 790.  
 Zeeman Effect, '07, 858.  
 Zeller, Eduard, '08, 775.  
 Zeppelin, Ferdinand, Count von, '08, 775.  
 Zerrahn, Carl, '09, 791.  
 Zinc, '07, 858; '08, 775; '09, 791.  
 Zionism, '07, 859; '08, 775.  
 Zoological Expeditions, '07, 859.  
 Zoological Societies, '07, 859; '08, 775; '09, 791.  
 Zoology, '07, 859; '08, 776; '09, 791.

